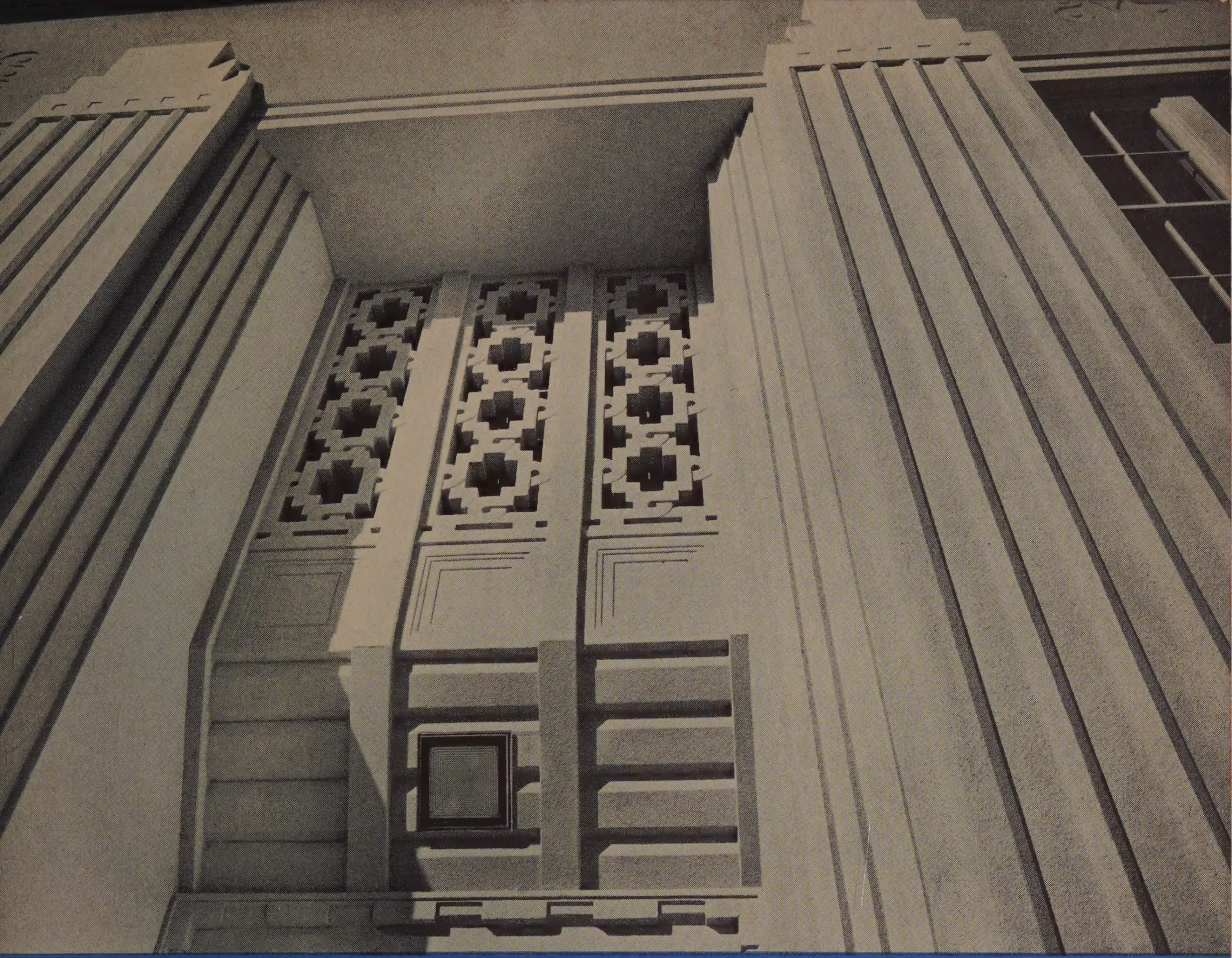
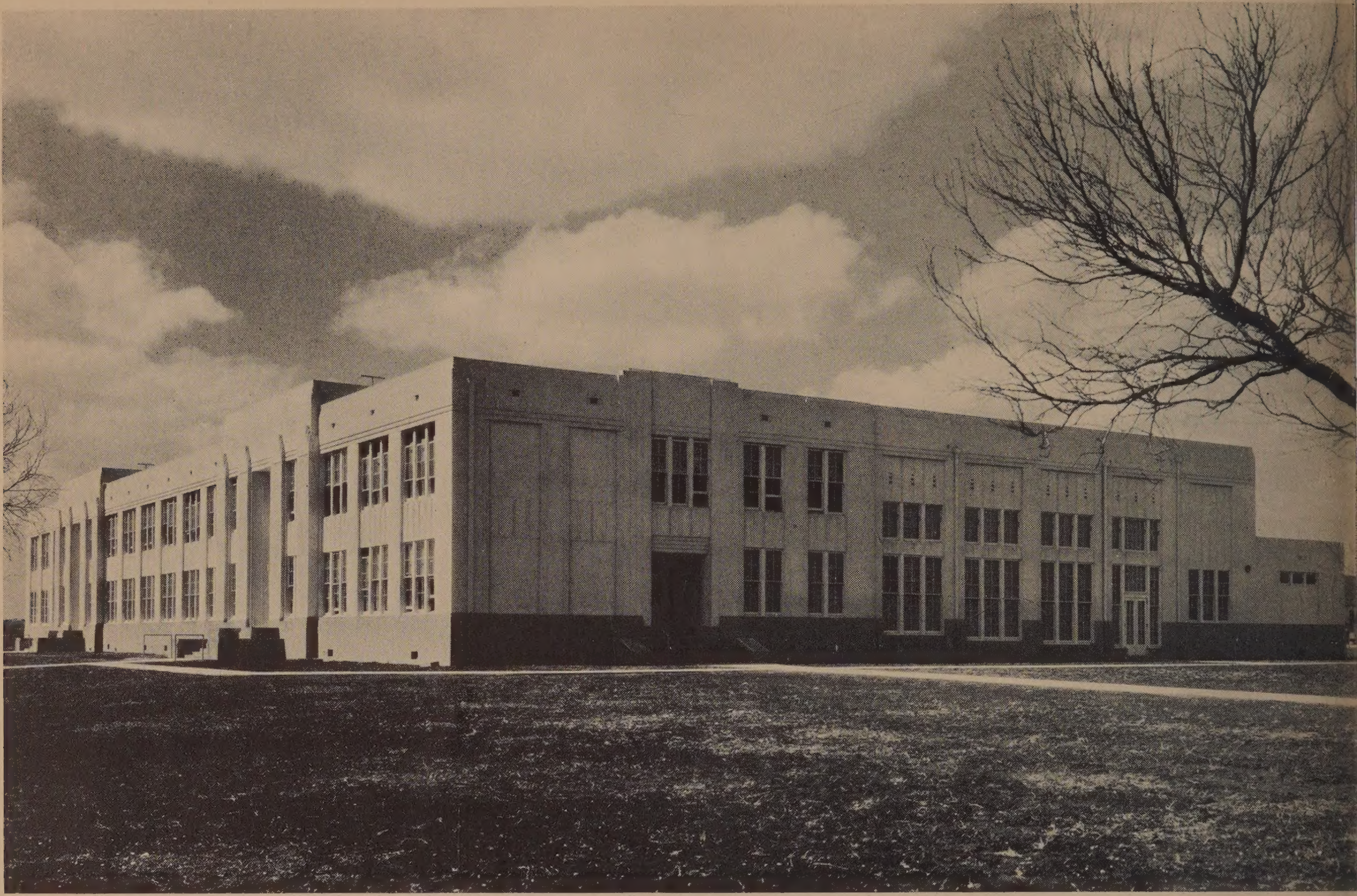


ARCHITECTURAL CONCRETE

VOLUME THREE NUMBER TWO



HORACE MANN JUNIOR HIGH SCHOOL

San Antonio, Texas

Atlee B. & Robert M. Ayres and
Adams & Adams, Associated Architects

Phelps & Dewees, Consulting
Architects for Board of Education

Matthews and Kenan, Engineers
King B. Key, Contractor

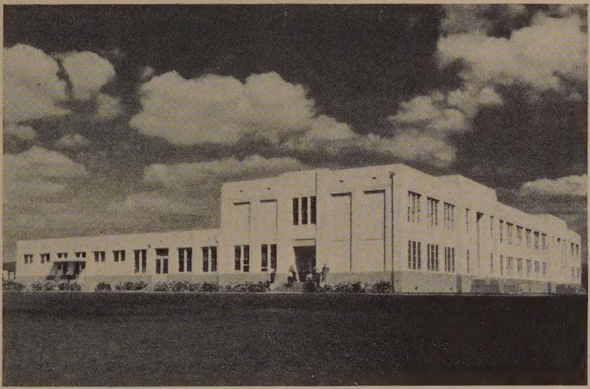
First of two new architectural concrete school buildings to be completed under San Antonio's current building program is Horace Mann Junior High, opened last February 1. Concrete construction met San Antonio's budget and building requirements. The simply designed modern structure has light-buff stucco dash coated walls, depending upon flutes and grilles for the only decorative detail (see cover).

Architectural
CONCRETE

New School for San Antonio

By Gerard M. Baker*

WHEN 1,000 San Antonio, Texas, students gathered last February 1 for the opening of Horace Mann Junior High School, they saw the first school completed under the current board of education building program, and the first large modern concrete school in the southwest although several small schools of the type had been built previously. Under the warm winter sun of that opening day, they had an impressive view of the bright, clean, simply adorned walls that will soon typify San Antonio school buildings; for while classes were getting down to work here, big mixers were turning out concrete for another new school on the other side of town tentatively named Southwest Junior High School.



One side of the building provides parking facilities for bicycle commuters.

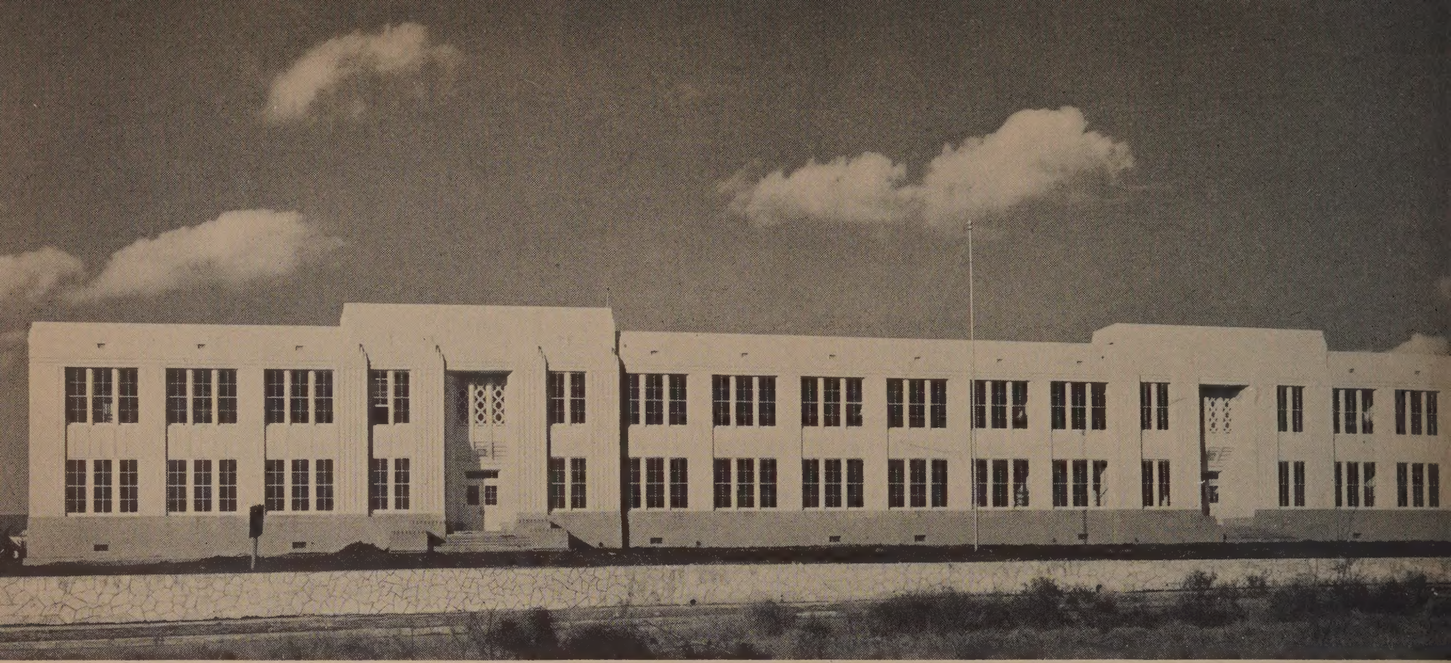
This new school, which during construction was called Northwest Junior High, is a large structure. Its ground floor dimensions are 245 x 164 ft., with a 245 x 60 ft. second story running the length of the front facade which faces south in Huisache Street. This two-story portion of the building is largely devoted to administration and class room use with a cafeteria, vocational study rooms, shower and dressing rooms occupying the one-story portion at the rear. An auditorium, also two stories high, occupies part of one side of the structure.

The building surrounds an open court which, when properly planted, will give the effect of a tropical patio. Future plans involve roofing over part of this patio to form a dining room extension for the cafeteria.

The size of Horace Mann Junior High (accommodating 1,000 students), was determined at a time when building costs were comparatively quite low, but unit costs increased before plans were ready for working drawings. Since added facilities were sorely needed, the architects sought some way to build the proposed school and still keep within the original allotment of $160,000, a sum which could not be exceeded without penalizing other buildings planned under this school expansion program. With a more economical type of construction than was first considered, this might be accomplished. One of the associated firms of architects had recently completed an architectural concrete building which was not only successful but economical. Accordingly, tentative plans were drawn showing walls of architectural concrete in one, and brick and hollow tile walls in another. Two local contractors pre-

---

*Superintendent of Construction for Phelps and Dewees.



Identical entrance portals dominate the 275-ft. front facade. This two-story portion of the building contains most of the class rooms. The auditorium forms one side of the inside court, a cafeteria and shops the other sides.

pared estimates based on these alternate designs and the average of the two estimates showed that a minimum saving of $6,400 could be effected through the use of architectural concrete. This decided the course of action, and work proceeded with concrete specified in the final plans.

While the use of concrete walls did not alter the general plan of Horace Mann School, it brought up new possibilities for its architectural treatment. Here was a material in which the popular modern style might be achieved effectively and economically. By limiting decorative details to important localized motifs characteristic of concrete forming, further economies might be realized.

The definite horizontal feeling due to the dimensions of the building is emphasized by narrow reveals in the parapet and a dark colored base. Interest is centered at the two main entrances where tall, simply fluted pilasters flank deeply recessed doorways over which precast concrete grilles are placed. Vertical recesses in the spandrels were formed by insetting strips in the face of the forms.

In preparing the structural design, unusual foundation conditions required special consideration. To reach a deposit of hard yellow clay about 35 ft. below original grade, 120 drilled and reamed pedestal pile footings were used. The piles, for which the concrete was placed in a continuous operation, are 18 and 24 in. in diameter with bells at the base averaging 5 ft. in diameter. The pile bells were designed for a soil pressure of 4,000 lb. per sq. ft.

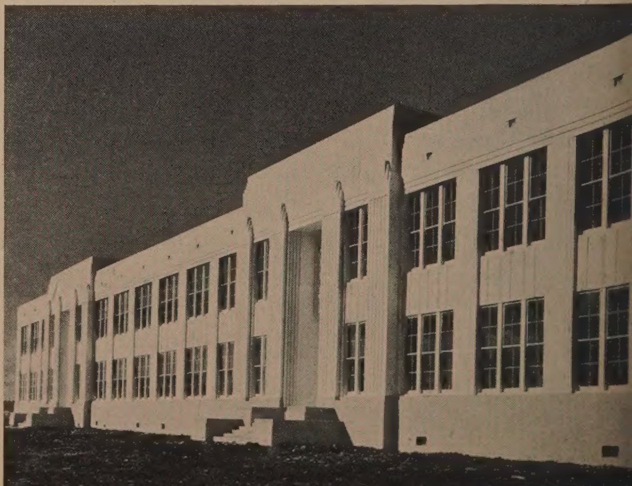
Because of the length of the building and its shape as a hollow rectangle, it was considered advisable to provide expansion joints which in effect divide the building into four units. One-inch expansion joints extending completely through the building are located at the right of the left entrance and at the left of the right entrance.

Forms for the exterior walls were made of shiplap sheathing lined with ⅜-in. fir plywood, oiled on the job. For the reinforced concrete joist floors 30-in. wood pans were used. Joists were formed with a split wood soffit to enable shoring to remain after the soffits were removed. Wood forms were used between the joists, made in panels to expedite placing and removing. The size of the building and the fact that it is divided into units by expansion joints made repeated use of forms possible. Wall forms were reused about five times, the pans and soffits eight or nine times.

A combination of silica and limestone sand was used for fine aggregate. The addition of natural sand was necessary to secure proper grading and to overcome harshness which is characteristic of limestone sand. Coarse aggregate was washed and graded from ¼ in. to 1½ in.

Trial proportions were 1 sack cement, 292 lb. sand and

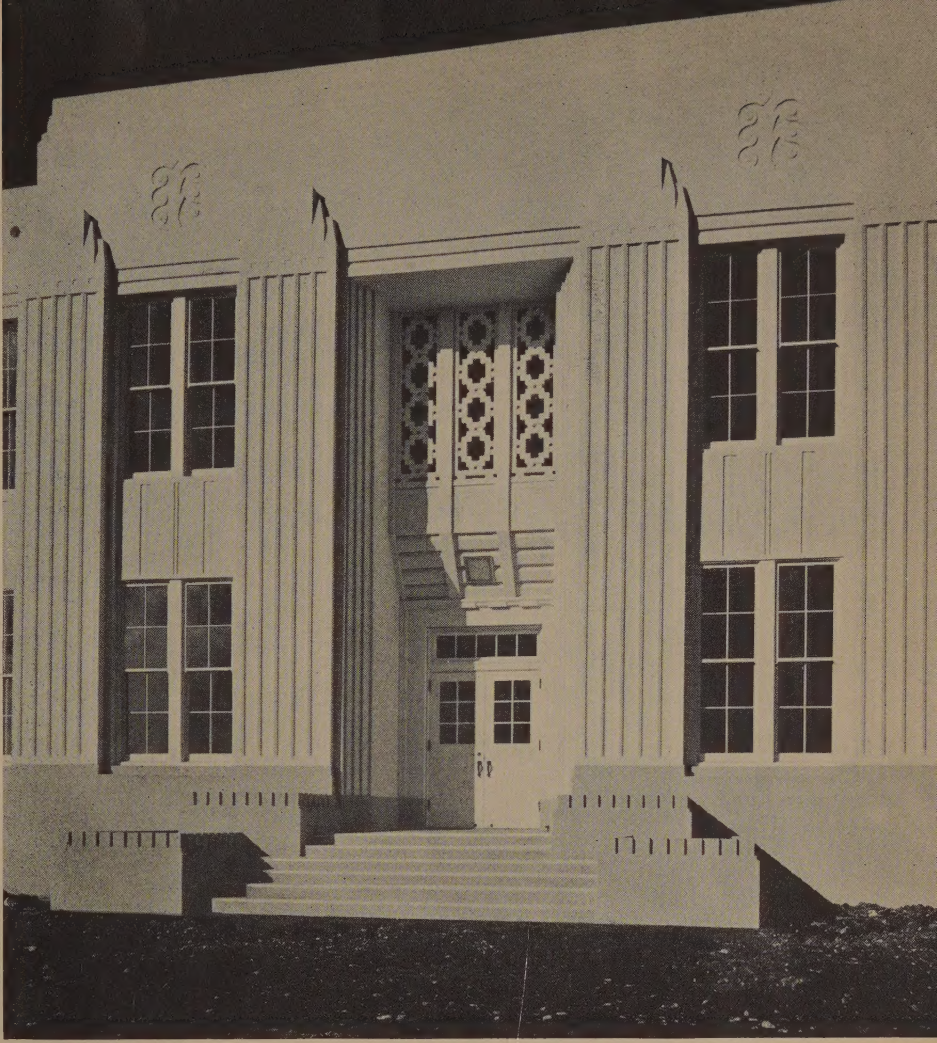
One-inch expansion joints were located at the left of the right entrance and the right of the left entrance.



470 lb. gravel. Water in the aggregates in each batch amounted to 1¾ gal., requiring the addition of 5¾ gal. to make a total of 7½ gal. per sack cement. This water-cement ratio would be a little high for northern climate but is considered satisfactory in the more mild climate of Texas. All mixes were determined by a testing laboratory representative who was on the site during all major operations. Aggregate was weighed on platform scales located behind the mixer and water was measured in a calibrated tank on the mixer.

The original specifications allowed a minimum of 4½ sacks cement per cubic yard for 2,500-lb. concrete; but the low cement factor, it was found, resulted in sandy corners that could be rubbed blunt with the thumb and caused ragged arrises. When the cement content was increased to slightly above 5 sacks, the arrises were sharp and firm. The richer mix also reduced surface defects such as sand streaks, water pockets and slight honeycomb so that very little patching was required.

The concrete was hoisted to any desired level by a tower and hopper erected at each end of the building and was brought to the forms in rubber-tired buggies on runways. A gasoline-powered vibrator, moved from place to place by two laborers, was a valuable aid in placing all concrete for the job. The concrete above grade was placed in five lifts with horizontal construction joints located at the window sills and heads. The highest lift was 10 ft.



Wood and plaster molds were used in forming all cast-in-place detail. The pierced grilles over the entranceways were precast in waste molds and set between the cast-in-place mullions.

For reinforcing the 6-in. walls, ½-in. round bars were spaced on 9-in. centers both ways in a single curtain. The 10½-in. walls have a double curtain of reinforcement—½-in. rounds on 9-in. centers both ways on the inside, and ½-in. rounds on 12-in. centers both ways on the outside. All spandrels were reinforced as beams with steel top and bottom and necessary stirrups. Additional ⅝-in. round hooked bars were placed at each jamb, with ⅝-in. diagonals at the corners of all openings. Pilasters were reinforced as columns and a continuous bar was placed at the top of the parapets in addition to typical wall steel.

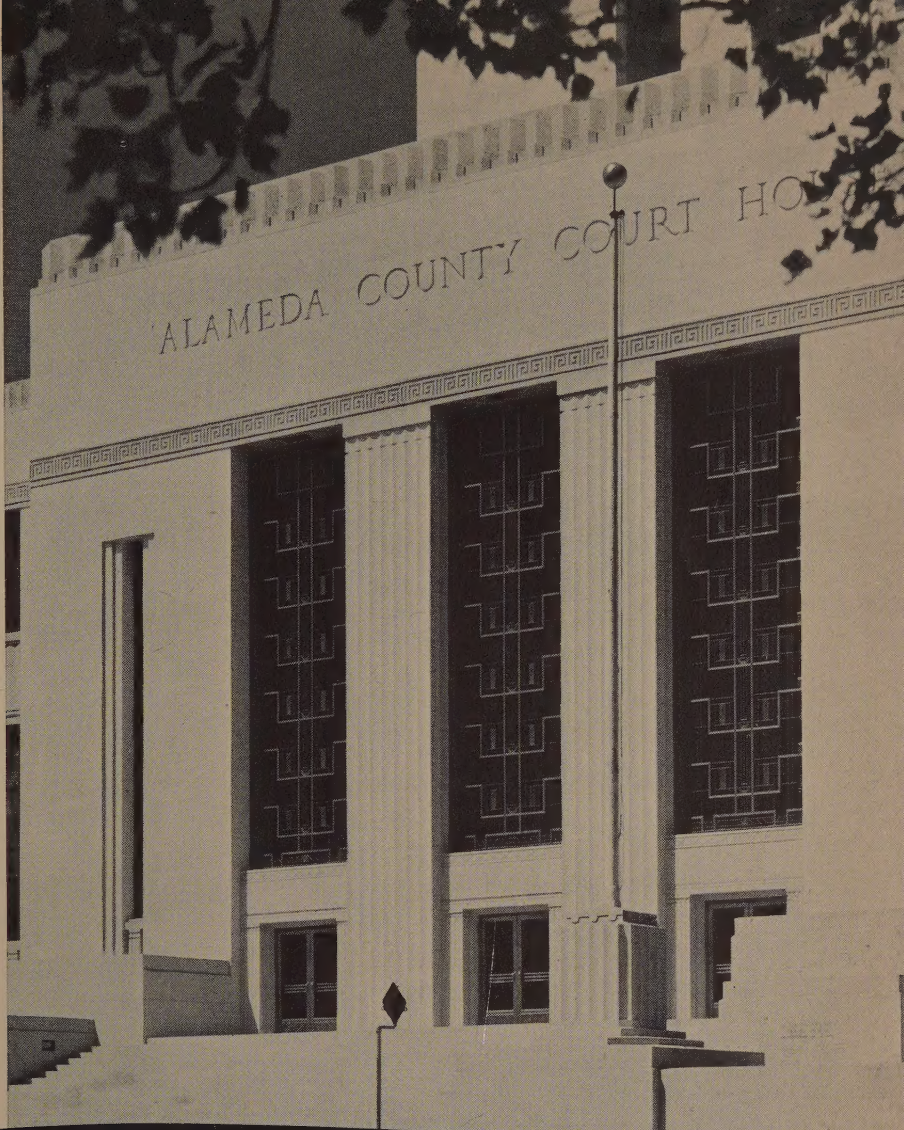
In finishing the exterior, a brush coat of white portland cement paint and yellow ochre was applied, followed by a medium-thick coat of broom dash stucco using the same materials with about 1½ parts fine sand added. The dash coat is heavy enough to give the structure a uniform color, but not so heavy that it obliterates detail developed by forming material. The dashing operation began and ended at points selected by the architects' representative so any slight variation in color or texture would be inconspicuous.

For interior finish, portland cement scratch and brown coats and gypsum finish coat were applied directly on the concrete walls. The metal lath and channel partitions were also finished with portland cement plaster.

Under construction 9 months, the building was finished at a cost of $160,743, or 21.1 cents per cu. ft., including plumbing, heating and electric wiring. Landscaping was done by WPA and NYA crews, adding no cost.

Atlee B. and Robert M. Ayres, and Adams & Adams were associated architects, and Phelps & Dewees, consulting and supervising architects for the San Antonio board of education. Matthews and Kenan were structural engineers. King B. Key was the contractor. All connected with the design and construction are from San Antonio.

New Alameda County Court House at Oakland, Calif., lives up to its splendid setting (see opposite page) in monumental design and careful craftsmanship. An earthquake-resistant structure with rigid concrete walls enclosing and embedding a steel frame, it was designed by a board of architects comprised of Will G. Corlett, Henry A. Minton, James W. Plachek, William E. Shirmer and Carl Werner. J. Harry Blohme was engineer-inspector for PWA. Total cost of building, ground and all services and equipment was slightly over $2,000,000.



Alameda County Court House

By Will G. Corlett
A. I. A., M. Am. Soc. C. E.

FEW public building
the new Alameda
Records, completed last
one side its full heigh
of Lake Merritt; from
with existing and pr
Occupying the grounds
broad streets, none of
the others.

It is a tall building
formly treated and fin
stories, a 244 x 176 ft.
square, 7-story tower
building and terminat

portion of the exposed walls, is treated simply and characteristically as monolithic concrete.

The building has a complete structural steel frame with reinforced concrete floor and roof slabs and concrete walls. Foundations are individual spread footings of reinforced concrete with square pedestals terminating at ground floor level and connected at the top with 12 x 14-in. reinforced concrete tie beams in both directions. Soil of uniform and adequate bearing value was found about 14 ft. below the ground floor, so most footings were established at that level. All steps, approaches and area walls are carried on isolated footings to the same soil stratum.

The structural steel frame, fabricated of rolled sections, was entirely encased in concrete fireproofing. Beams 21 in. and over in depth were fireproofed with pneumatically-placed concrete a thickness of 2 in. to reduce dead weight.

Contrary to the usual practice in design of tall buildings for earthquake resistance, the 207 ft. high Alameda County Court House was readily made to act as a rigid structure. The concrete walls and floors of the building were entirely depended upon to resist the horizontal forces due to earthquakes and to provide the rigidity required to produce a short period of vibration. The steel frame was designed to carry a horizontal load equivalent to 2 per cent of the weight of the completed structure, while the concrete walls and floors were designed for a lateral force of 20 per cent of the total weight of the building with design stresses within elastic limits of the materials. Although the structural steel frame is a factor in earthquake resistance with its embedment in the concrete, the relatively greater rigidity and stiffness of the walls require their design to resist the full lateral design force that an earthquake would impose upon the building.

The stiffening effect of the walls and floors is evident from the tests conducted by the United States Coast and Geodetic Survey in its study of the vibrations of buildings. First readings, taken when the steel frame was completed but before any concrete had been placed, showed a period of about 1.2 seconds, while the completed building had a period of somewhat less than 0.6 seconds. It was found, as anticipated, that the natural period of vibration of the building was reduced as the concrete walls were brought up around the steel frame.

Designed as a rigid structure, shears were distributed to the piers according to their relative rigidities, considering both bending and shearing deflections. Spandrels and piers were then adequately reinforced to resist this bending and shear. Exterior wall thicknesses range from 14 in. to a minimum of 8 in., and all walls in the lateral force systems were designed for 3,000-lb. concrete with two curtains of reinforcement. No difficulties were encountered during design to provide the earthquake resistance attempted and the added cost of such design was not reflected materially in the total cost of the concrete work. With the advantages of opportunity for disposition and symmetry of wall areas, this added cost would not exceed 3 per cent of the total cost.

For concrete exterior walls up to the tenth floor and for the diaphragm at the third floor, the mix was designed for 3,000 p.s.i. at 28 days. Cylinder tests made at that time, however, showed an average strength of 4,000 p.s.i.

The lower three stories forming the base of the building house most of the public offices. Court rooms, district attorney's offices and a jail occupy the 7-story tower. From any angle, Alameda Court House presents a practically identical facade.

Exposed surfaces were cast in shiplap lumber forms, rough side in. Placed with the aid of vibration, the resultant concrete has a fine, uniform texture in which the marks of the form boards are faintly apparent. A finish coat of white portland cement stucco, not intended to efface these form marks, gives desirable character and color to broad wall areas.

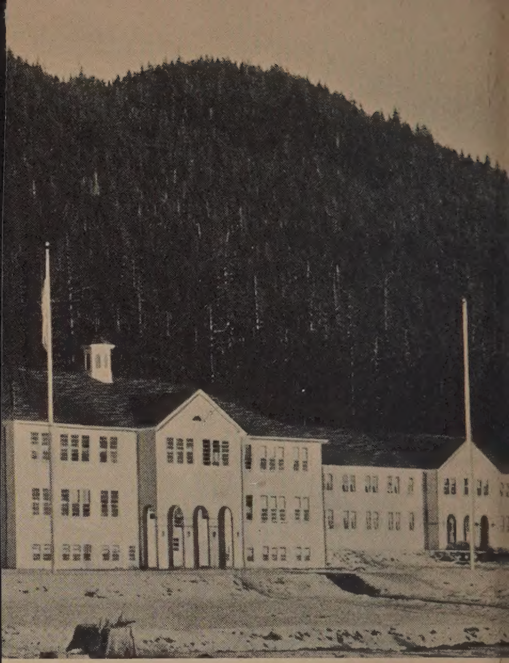
The directness and simplicity of the architectural design and the construction are reiterated in the planning of the interior. Efficient layout, economical use of space and free circulation were desired throughout the structure both as a convenience to the public in gaining access to various departments and offices, and in lowering the cost of building operation. All departments where large numbers of people transact business are confined to the lower floors, with less publicly used departments such as courts, witness rooms and other justice offices occupying exclusively the third to eighth floors. The district attorney's office occupies the entire ninth floor with a complete jail for prisoners awaiting trial located on the tenth and eleventh floors. The jail accommodates 110 prisoners with kitchen, visitors' rooms, consultation room as well as quarters for jailer, bureau of identification, jail physician and photographer.

Four large elevators and a jail elevator serve the upper floors. A special elevator, exclusively for service to the jail, is accessible from a vehicular underpass through the building at ground level and provides access to all court rooms from above or below, entirely out of view of the public.

It is impossible in this space to enumerate all the offices and departments accommodated in Alameda Court House, but its 5½ acres of floor space has been so divided that all county offices have ample room for the conduct of their various functions. The building, including the purchase of land and all services required in its design and construction, cost $2,195,050. All the contracts for the construction of the building amounted to $1,643,609. The city block upon which it is erected was purchased for $268,000. Other expenses including surveys, tests, bond expense, architecture, engineering and inspection, and a reserve for contingencies amounting to more than $138,000, made up the total figure. More than $400,000 of the cost was in PWA grants, the remainder was financed by bond issue.

All architecture, structural and mechanical design and supervision were the work of a board of five architects including Will G. Corlett, Henry A. Minton, James W. Plachek, William E. Shirmer and Carl Werner. J. Harry Blohme acted as engineer-inspector for PWA.

Beside the quiet waters of Lake Merritt, the Court House is a double study in symmetry and balance.



has become the preferred material for permanent
, Wrangell, Alaska, were designed by N. Lester
o. was contractor for dormitory buildings at each

on in Alaska

N been erected in Alaska. The reason for this, when one studies the history of the territory, is quite apparent.

Alaska was pioneered by people who were lured to the great north by gold and fish. Gold first, and then fish when the gold ran out, or prize claims were staked and the rush was over. That early gold-rush civilization had little interest in permanent construction. They were an adventurous, restless, fast-spending lot, interested in making a quick clean-up, with long-time aspirations for gold enough to buy a South Sea island, or at least the wherewithal to spend life basking in sunshine resorts far away from the varied and troubled climates of the Alaska bonanza country.

When the golden glow of Alaska dimmed, the sturdier folk turned to fishing, lumbering, farming—less rapidly lucrative industries than gold mining, but more conducive to settled communities and stable economics. Now most of the hastily, flimsily-erected boom towns of the gold era have become permanent cities; and they are gradually constructing permanent and substantial buildings.

a large territory. It covers more than 540,000 square miles and has over 26,000 miles of coast line. Due to varied climatic influences affecting widely separated regions, Alaska boasts about every possible kind of weather and temperature except that of the tropics. This has had great influence on the type of construction that is becoming prevalent in the territory. The southeastern portion, or panhandle, has a climate similar to that of Washington, D. C., but with considerable more rainfall. The thermometer there very seldom drops lower than 10 above zero. In summer there are blistering heat waves. In the interior, temperatures go as low as 70 below zero; and in many locations it is necessary to build on permanently frozen ground, or glacier ice.

During my eleven years of practice in Alaska, I have designed buildings in every portion of the territory from Ketchikan in the southeast to Point Barrow, farthest point north, to Attu at the extreme tip of the Aleutian Islands, and many places in between. While I have found reinforced concrete construction confined chiefly to the more populated areas, I have seen it used to some extent everywhere. Regardless of conditions, I do not hesitate to use it in any part of Alaska.

Concrete buildings have been erected in all the large towns—Juneau, Ketchikan, Wrangell, Sitka, Douglas, Cordova, Nome, Anchorage, Seward and Fairbanks. In all cases these buildings have proven satisfactory to builders and owners. In fact, in many places concrete has become a preferred material for use where strength, ornamentation and fire-safety are required in the same structure.

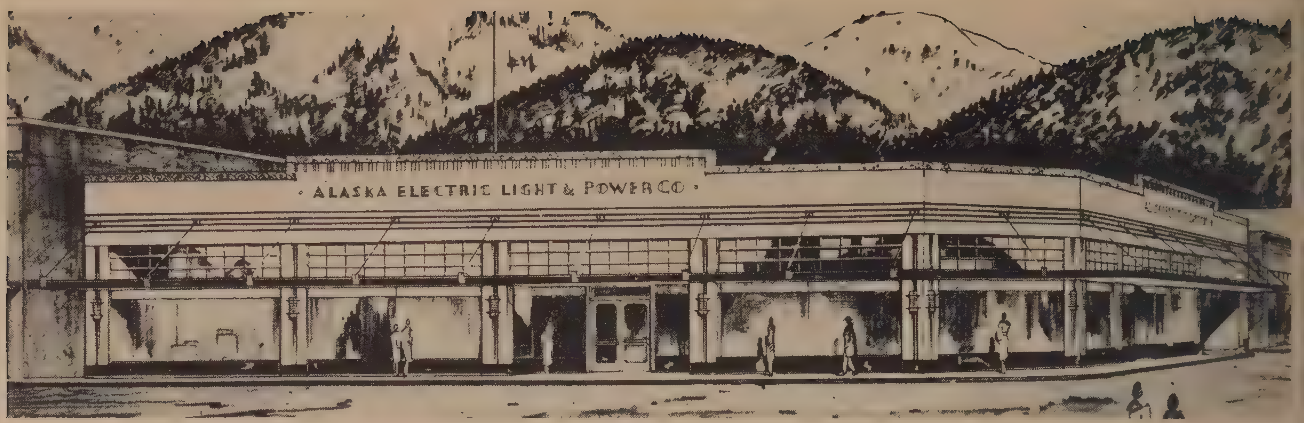
Decker Building, Juneau, was erected in 1935, a modern reinforced concrete structure. N. Lester Troast and Associates, architects. Warrack Construction Co., Seattle and Juneau, contractor.

The high cost of transportation, the scarcity of skilled mechanics, and other factors, make masonry construction prohibitive in practically every section of Alaska. On the other hand, excellent concrete materials are available everywhere, and the balance of skilled and common labor required for form erection and other operations of architectural concrete work can be found in all the larger communities. Thus, for permanent construction, concrete is most economical.

In southeastern Alaska concrete building practice is similar to that in most parts of the United States. No more insulation is required than is used there, and in general, furring and plaster are considered sufficient. Finished surfaces in the southeast portion of Alaska are generally fairly smooth, rough textures being avoided.

Due to rapid temperature changes, slightly more reinforcement may be provided in walls to resist stresses caused by expansion and contraction than
stomary elsewhere. It is not
ommon to find winter temp-
ures of 60 deg. during the
dle of the day, dropping sud-
y to 10 or 15 above at night.
aside from this and the neces-
for designing to resist slight
frequent earthquakes, I would
that concrete buildings in
heast Alaska are very much
those in Seattle, Chicago and
York.

the interior, concrete prac-
differs mainly in wall thick-
and amount of insulation
This is subject, of course, to
particular climate of the


ALASKA ELECTRIC LIGHT & POWER CO

Design for Alaska Electric Light & Power Co., a reinforced concrete structure now under construction. N. Lester Troast and Associates, designers, H. J. Sommers Construction Co., Juneau, is the contractor.

region. It is necessary to determine the minimum wall thickness which, when combined with proper insulation, will prevent rapid heat conduction. Otherwise, hoar frost will form the same as on walls of any other type.

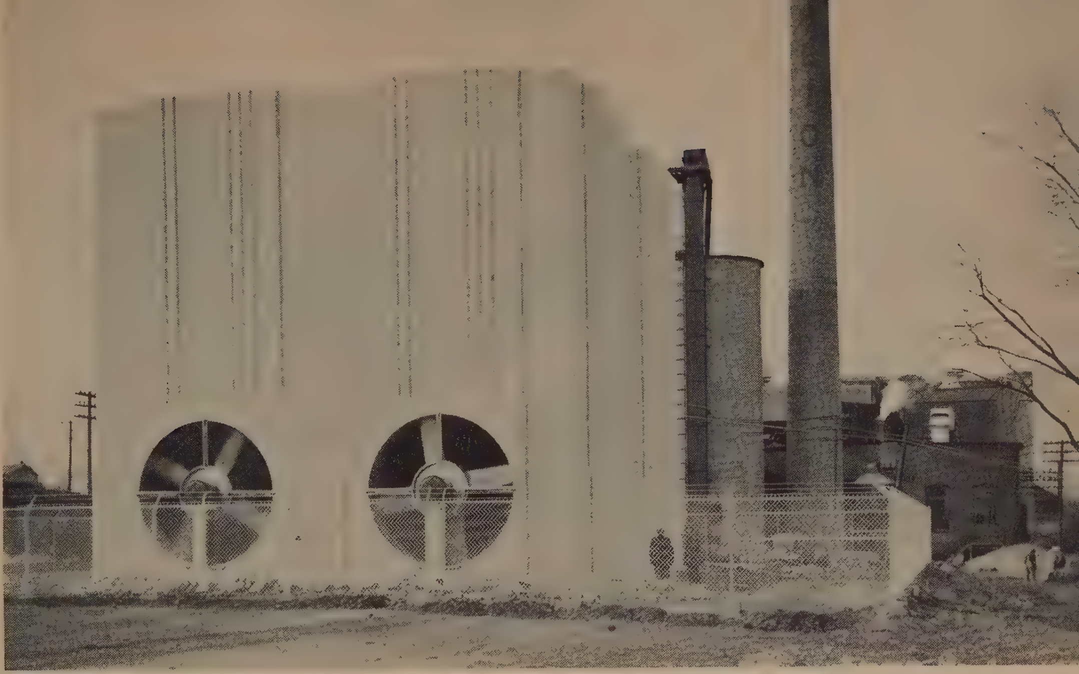
What to outsiders must seem impossible building conditions are found in localities where the ground is permanently frozen or else there is no material but ice upon which to build. We have found, however, that frozen ground or ice provides just as good a foundation as ordinary unfrozen earth, providing it is never allowed to melt. Construction of building foundations on such subgrades depends upon the use of the building to some extent.

Recently we designed a boiler house and heating plant for the Government Hospital at Point Barrow, the farthest north settlement in the territory. The building is erected on solid glacier ice, extending an indefinite depth below the surface. In this case it was not only necessary to insulate the walls and roof of the building to prevent heat loss and objectionable condensation, but also to use insulation to reduce heat transmission from the building to the foundations which otherwise might soften the ice. Since outside temperatures never moderate enough to melt the ice, no fear is felt for the stability of this concrete structure built on a glacier.

Architecturally, concrete runs the range of styles in Alaska towns. As elsewhere, there has been wide acceptance of so-called modern design for structures of all sizes. More conventional designs are found equally easy to express in concrete. Although Alaska may seem to be an outpost where weird assortments of climate prevail, it should be remembered that it is in most things a normal American country. Civic pride, business ambition and conduct of everyday life are no different here than in the States. As Alaska grows economically, its cities have sought to make themselves permanent. In this, concrete—which is most adaptable to the climate, to conditions brought about by geographic isolation, and to territorial economics—has played a large and important part.

Shattuck Building, store and office structure in reinforced concrete, designed by N. Lester Troast and built by Warrack Construction Co. This structure was completed in 1934.

No dirty, grimy tank is the water cooling tower at Galion, Ohio, light plant. As a bold step toward fine appearance for the lowliest kind of utility structure, Galion insisted on a cooling tower with architectural merit, worked it out in reinforced concrete with carefully formed pilasters and reveals. William C. Kammerer and Associates, consulting engineers of Cleveland, were the designers. Weithman Bros. of Galion, contractors.



concrete and flat and [illegible]

New Orleans Gets Modern Bus Terminal

By Collins C. Diboll*

MODERN version of the old American stage coach is the motor bus. Like its last century counterpart, it has opened new lines of communication and travel, broken the barrier of isolation in hundreds of communities which, before the spread of bus transportation, knew none of the advantages of convenient public carriers. Bus lines, spreading like a web from coast to coast, have brought almost the last outlying hamlet within a few hours' distance of some important city, connecting it with rapid transportation to any place in the country. In key cities, bus lines now dispatch modern luxury coaches in every direction every hour of the day and night. Keeping scores of arriving and departing coaches on schedule has required increasing terminal facilities.

Despite the phenomenal growth of motor coach service, not until recently have adequate terminals been provided. Acquisition of desirable central locations for depots and waiting rooms has been a major problem. A bus depot requires space not only for waiting rooms, restaurant and comfort facilities, but room for drive-in, shelter and turning movements for several coaches at one time. To find such property close to central business and lodging areas and adjacent to important thoroughfares has been difficult. Meanwhile, streetside loading has become a serious problem due to enlarged schedules and resultant traffic congestion.

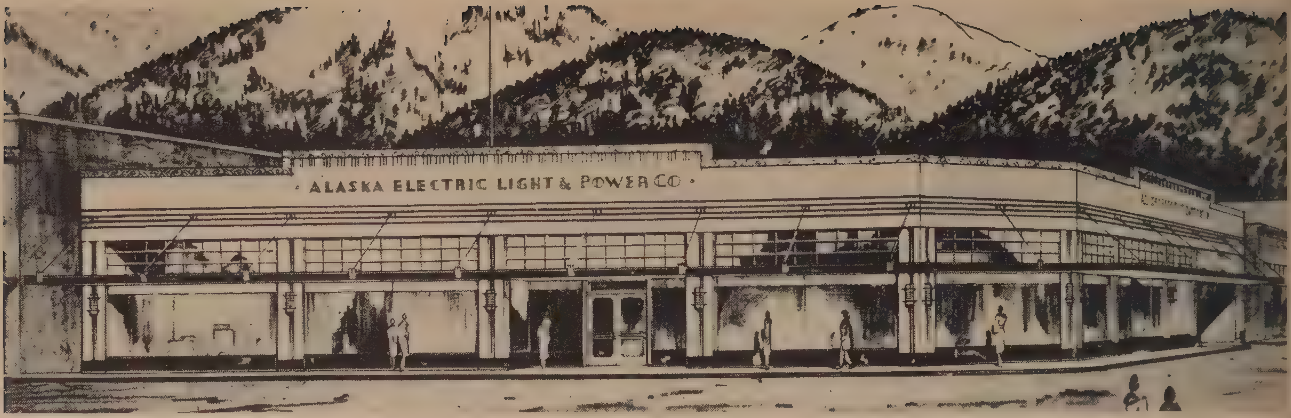
Among several new terminal buildings erected throughout the country last year is the Teche-Greyhound Depot in New Orleans. Located on the corner of Canal and South Villere Streets, and adjacent to the Jung Hotel, it has all the advantages of central position and proximity to main local and state traffic routes that could be desired. It fronts 127 ft. on Canal St. and 73 ft. on South Villere, with a 26-ft. wide drive-in from Canal. Here the buses unload. A concourse at the rear of the building is 77 x 153 ft. with an exit onto South Villere. This is used for the quartering of buses awaiting departure. Thus, motor coaches arrive and depart without going outside the terminal property. Both the drive-in and concourse are roofed over and daylighted with skylights.

Main entrance to the building is from Canal St. It has a 20 ft. deep vestibule, flanked by sub-rental space of the same depth and 52 ft. long, reached by separate entrances from Canal St. The restaurant, occupying the corner of the building, has access to both streets.

Economical use of space determined the plan of the building. Waiting rooms for white and colored patrons are located so that both are accessible to the same ticket and

---

*Diboll, Boettner and Kessels, Architects and Associated Engineers.


· ALASKA ELECTRIC LIGHT & POWER CO ·

Design for Alaska Electric Light & Power Co., a reinforced concrete structure now under construction. N. Lester Troast and Associates, designers, H. J. Sommers Construction Co., Juneau, is the contractor.

region. It is necessary to determine the minimum wall thickness which, when combined with proper insulation, will prevent rapid heat conduction. Otherwise, hoar frost ll form the same as on walls of any other type.

an alternate to another combination of materials for cost comparison. It was revealed that a saving of at least 10 per cent of the building cost could be accomplished by the use of concrete. The decision was further influenced by the belief that concrete was a more appropriate medium for execution of the modern design of the building.

A simple arrangement of masses accented by modest decorative devices constitutes the architectural design. Glass masonry in large masses, set on an even plane with the concrete surfaces, strongly emphasizes the horizontal and vertical lines of the building. Flat glass used largely to illuminate the first floor is also a factor in emphasizing the predominant lines and in defining the rounded corners.

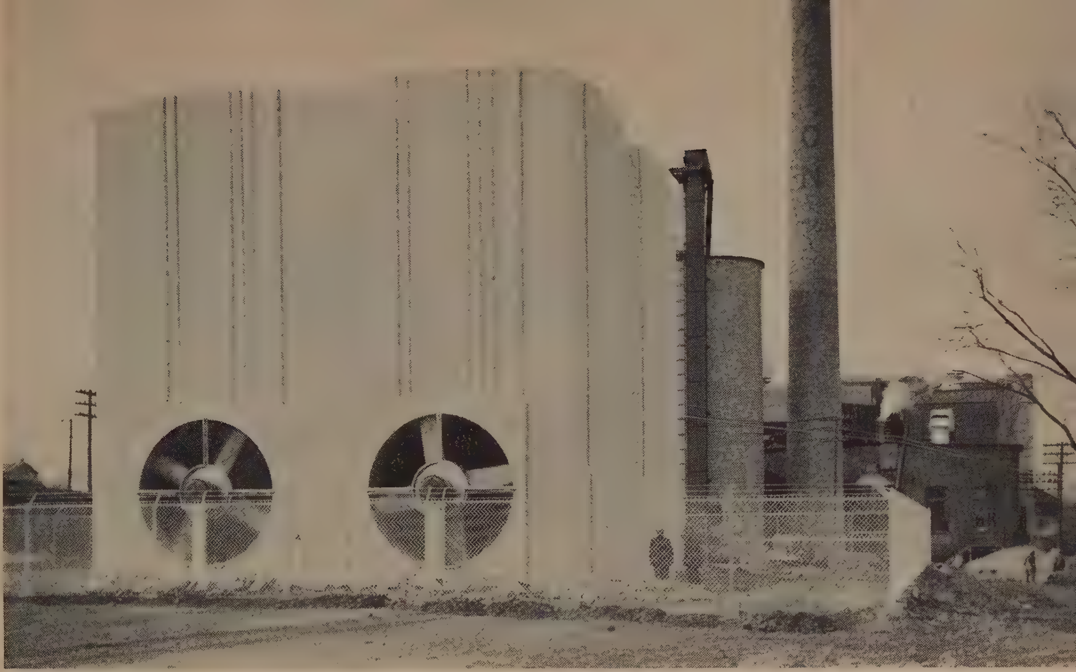
In keeping with the simplicity of the modern design, the large areas of concrete wall are painted with a buff cement paint and trimmed at the coping with blue oil paint.

High early strength cement was used throughout the job. The concrete for the walls was placed continuously around reduce heat transmission from the building to the foundations which otherwise might soften the ice. Since outside temperatures never moderate enough to melt the ice, no fear is felt for the stabili [illegible] wainscots and partitions were used in toilets, lavatories and shower rooms. A heavy canvas, stretched over the walls of the waiting rooms, provides a decorative and protective wainscot.

The lighting system is of the indirect type, employing floor stands fitted with combined mazda and mercury vapor lamps which light the arched ceiling of the waiting room. The building is air-conditioned summer and winter.

The new Teche-Greyhound terminal is the first smooth surfaced concrete building in New Orleans and one of the few definitely modern structures in that old city. The prominence of its location and the importance placed upon its construction and appearance by the owners demonstrate that it was intended as a permanent structure, in the erection of which economy, although important, was not the only factor. The building was designed by Diboll, Boettner and Kessels, architects and associated engineers. Its execution in architectural concrete by Caldwell Bros. and Harte, contractors, has been highly satisfactory to all.

Comfort and cleanliness were of major concern in designing the interior. The main waiting room is large, well ventilated and easily accessible to all comfort facilities. The green terrazzo floor of Cardiff green marble and white and grey portland cement is easy to keep clean through the depot's 24-hour day of activity.



No dirty, grimy tank is the water cooling tower at Galion, Ohio, light plant. As a bold step toward fine appearance for the lowliest kind of utility structure, Galion insisted on a cooling tower with architectural merit, worked it out in reinforced concrete with carefully formed pilasters and reveals. William C. Kammerer and Associates, consulting engineers of Cleveland, were the designers. Weithman Bros. of Galion, contractors.

Galion Wanted Something Different

By William C. Kammerer*

USUALLY, one of the uglier objects among a town's utility structures is the water cooling tower at the local light and power plant. A commonplace, functional structure, it is rarely an architectural asset. That it doesn't offend more often is due to the fact that light plants are generally tucked away in some out-of-the-way corner of the town where no one ever sees them. Not so in Galion, Ohio.

The light plant there is located at the side of the railroad where people arriving or passing through get their first and probably worst impression of the best of cities. Wishing to avoid the signs of squalor that parallel most railway tracks, the Galion city fathers have done their best to keep this fringe of their town neat and clean. Consequently, when Galion's light plant load necessitated changing from reservoir cooling to a more modern method of greater efficiency, a forced draft cooling tower was selected and it was decided the structure must be a good-looking building.

For a clean, straightforward structure, easy to look at and economical to build, a modern design was chosen to be executed in reinforced concrete. Square in plan, 40 x 40 ft. and 40 ft. high, all of its accents are vertical, eliminating any possibility of having a squatty box-like appearance. Smooth-formed in concrete and painted a light color, it gets further design interest from four large circular fan openings in the lower part of the building. These are the only openings.

This forced draft cooling tower consists of a basin, below grade, divided into two equal sections, and the shell above grade which is divided into four cells. Each section of basin serves two cells above, and the tower is so designed that any of the cells may be operated individually or in combination with the others. This insures maximum economy under any load condition. Under the worst summer conditions, the tower can cool 6,500 gal. of water to 84 deg. A study of modern condenser cooling methods revealed that in localities where water supply is limited, this type of a forced draft system is most desirable. It eliminates sprays, operates efficiently regardless of natural wind movements and requires much less ground area.

A 1:2:3½ mix was specified to produce a 24-hour strength of 1,800 p.s.i. using high early strength cement. Construction progressed smoothly and rapidly and the resulting structure is highly satisfactory to the citizens of Galion who wanted a decent-appearing building to advertise a fine-looking town.

Weithman Bros. of Galion contracted to do the concrete work including excavation, for $18,489. Mechanical installation was made by Foster Wheeler Co., Philadelphia, for $16,962.

---

*W. C. Kammerer and Associates, Consulting Engineers, Cleveland.

Architectural CONCRETE

ARCHITECT · ENGINEER · CONTRACTOR

IN THIS ISSUE

School was never like this before in San Antonio, says GERARD M. BAKER describing (page 3) a new type of brain factory in the old Alamo city. . . . A farsighted program by WILL G. CORLETT et al. (page 7) makes Oakland citizens see DOUBLE and like it. . . . Started on gold, reared on fish and partially built on ice—that's history of Alaska as briefed (page 10) by ARCHITECT N. LESTER TROAST. . . . Motor buses, until lately orphans of the street, get a new home in New Orleans (page 13) by COLLINS C. DIBOLL. . . . Fancy work beside the tracks (page 15) at GALION, OHIO. . . . A new set of details (pages 17 to 20) for your A. I. A. Files. . . . No little peddling business is fast-growing United Parcel Service, says (page 21) HUNLEY ABBOTT. . . . How Austin, Tex., citizens and farmers got together is told (page 24) by CHARLES H. PAGE. . . . The BURNING history of the corner of Third and E Streets, San Bernardino, Calif., is ended (page 27) with a concrete bank building by HOWARD E. JONES. . . . The SHINE on page 30 was partially due to mica. . . . CLAUDE K. SMITHLEY injects an old note into a new theme (page 32) and the result is HARMONY. . . . Seven CONCRETE ideas made graphic (page 34).

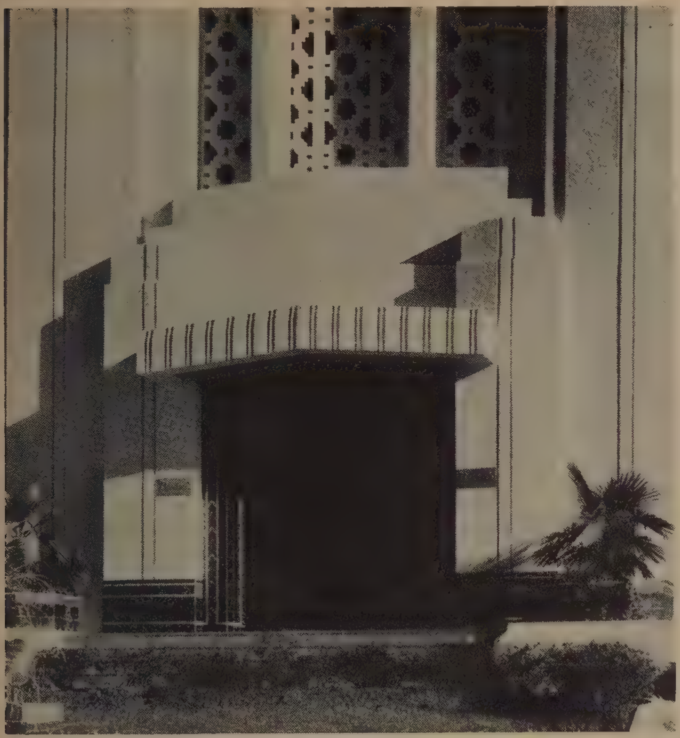
Published by
PORTLAND CEMENT ASSOCIATION
33 West Grand Avenue
Chicago

Building for Protection

IT is only when destructive forces take a sudden toll and spread horror to thousands that the hazards of present-day life are realized. Violent deaths occur daily, but not in impressive numbers. Fate is whimsical and more kind than not—too kind, perhaps, to warn us of our daily responsibility to protect ourselves and others. Earthquakes have toppled empty school buildings; hurricanes have crushed empty schools and churches, and great fires have raged at night in auditoriums, halls, schools and factories.

Once in a while a school will burn at Collinwood, Ohio and destroy a hundred children; or an Iroquois Theater in Chicago will burn and kill several hundred; a hurricane will sweep hundreds to death at Matacumbe Keys, Fla., or a school will explode in New London, Texas, and kill five hundred. These brutal tragedies have taught lessons—how to build firesafe structures, how to design against the lateral forces of hurricanes and earthquakes, how to build so strongly and rigidly that the forces of destructive elements may be minimized, and life sheltered in public and private buildings may be better protected. Unfortunately these lessons are not always observed.

It will probably never be possible to foretell where or when disasters will occur; but it is possible to design structures against them. The principles of design for the use of concrete to effectively withstand even the most freakish, outlandish, destructive forces, are well known. The added cost of safe design and construction is a negligible figure. Compared with the appalling losses from destroyed property, injury and lost lives, safe design costs nothing; it is, in fact, a rich asset. In a nation growing rapidly more complex in population and activity, its great numbers of people more helpless to protect themselves, it is the responsibility of anyone designing and building structures where many people gather to design and build for safety. Any imagined economy which avoids the utmost measure of protection is an invitation to tragedy.

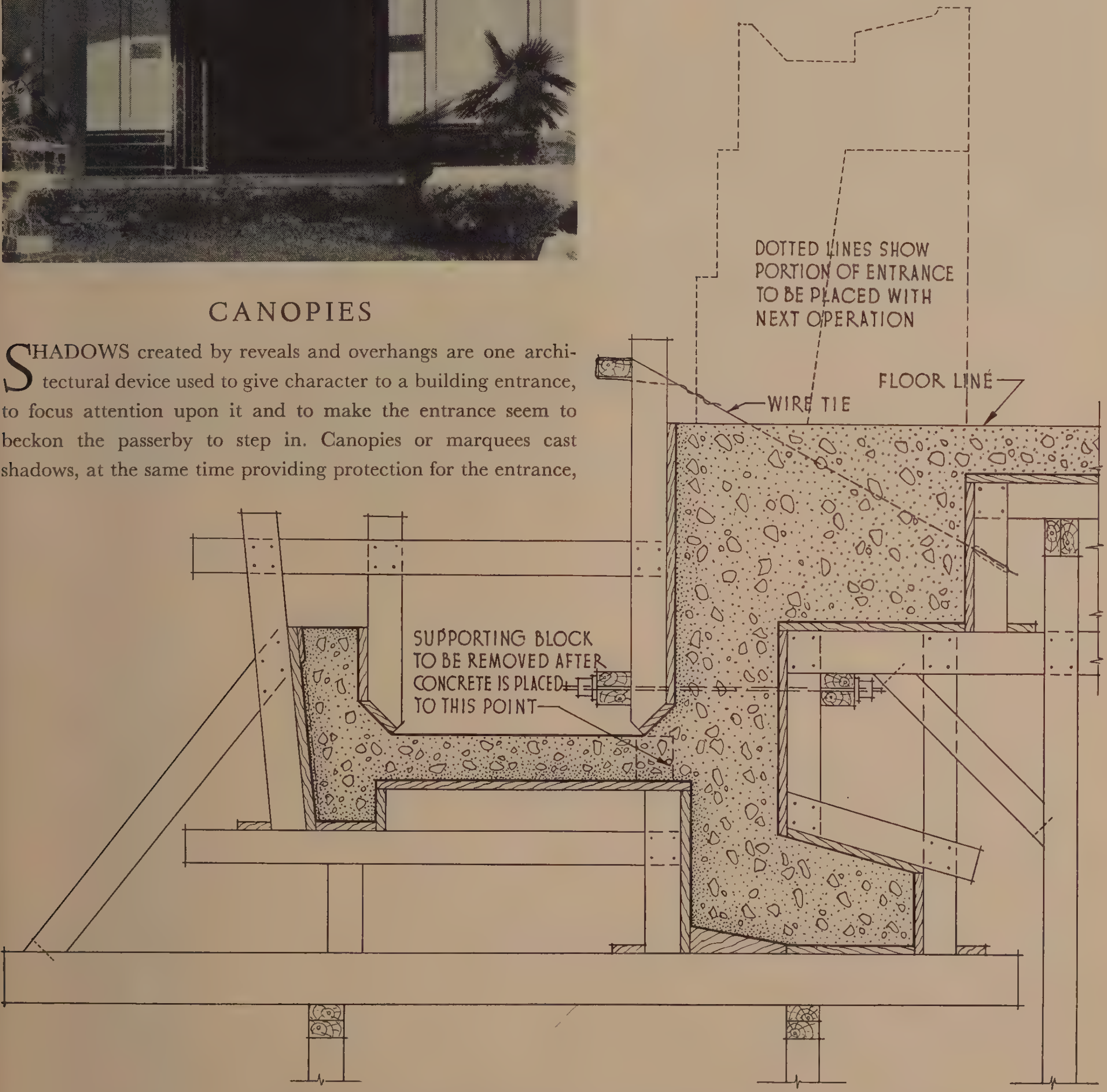


BORDEN MILK COMPANY, SAN ANTONIO. AYRES AND AYRES, ARCHITECTS. KING B. KEY, CONTRACTOR.

CANOPIES

SHADOWS created by reveals and overhangs are one architectural device used to give character to a building entrance, to focus attention upon it and to make the entrance seem to beckon the passerby to step in. Canopies or marquees cast shadows, at the same time providing protection for the entrance, so the problem of constructing them often confronts the contractor and in an architectural concrete job it is logical that they should be an integral part of the construction and not something tacked on.

Use of columns to support canopies is not always feasible, so it is frequently necessary to cantilever them from the lintel or wall above the door opening. These

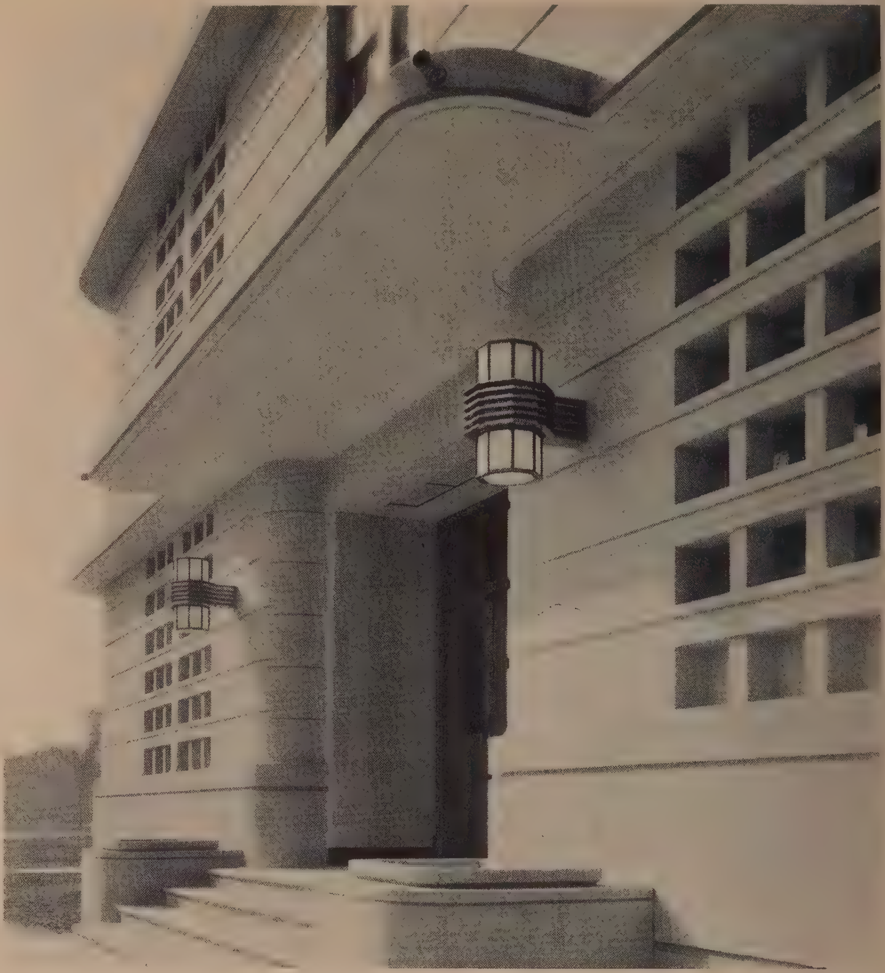

DOTTED LINES SHOW PORTION OF ENTRANCE TO BE PLACED WITH NEXT OPERATION
FLOOR LINE
WIRE TIE
SUPPORTING BLOCK TO BE REMOVED AFTER CONCRETE IS PLACED TO THIS POINT

NARROW CANOPY WITH FASCIA BEAM

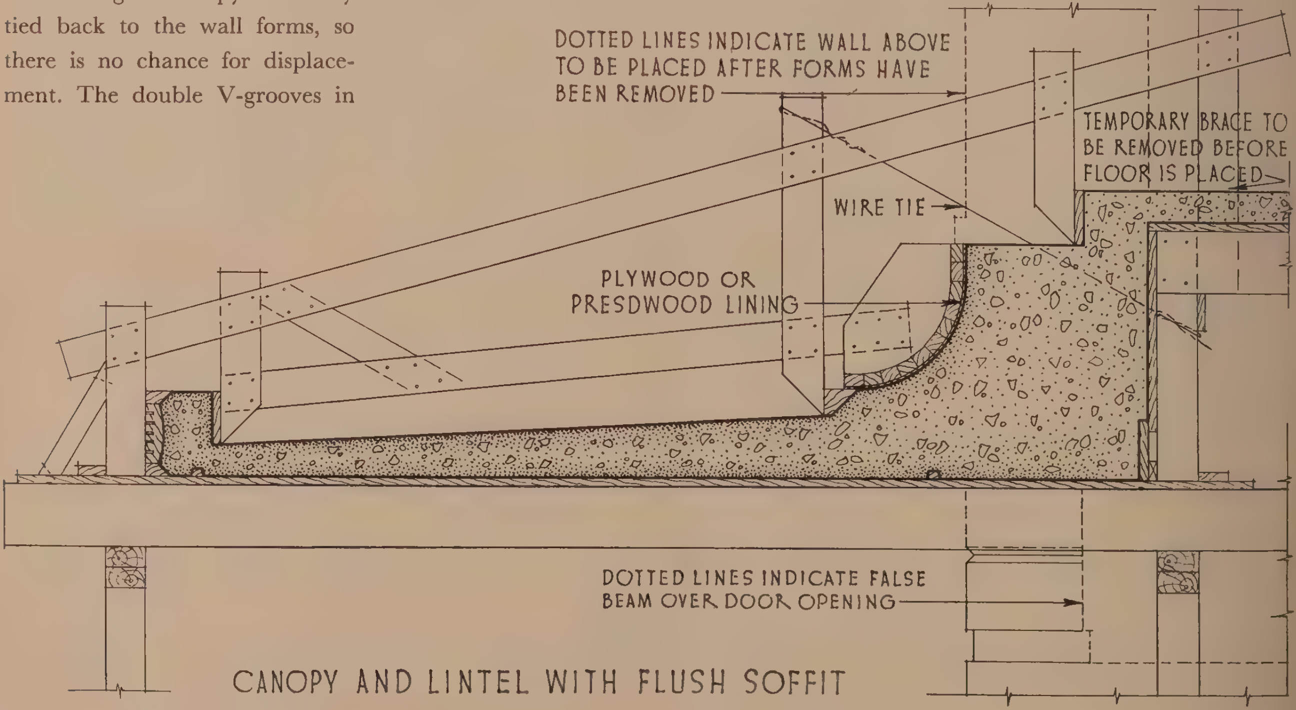
cantilevers may be simply a relatively thin flat slab, or there may be a fascia beam framing the edge of the slab to serve the dual purpose of supporting the slab and giving the designer an opportunity to introduce a decorative feature. Such decoration need add little or nothing to the cost, since it is cast as a part of the beam itself.

Because of the conspicuous location of canopies, careful forming is especially important. The problem is not a complicated one, but is primarily a matter of providing adequate support and holding lines true. The accompanying details show how this can be done for several different conditions, although the details may not be precisely those used by the contractor who did the work.

The fascia beam of the canopy shown on preceding page gives depth and sufficient massiveness to the canopy to harmonize with the design of the entrance and building as a whole. Projecting as it does above the slab, it requires suspending the inside form. All of the framing for canopy is securely tied back to the wall forms, so there is no chance for displacement. The double V-grooves in



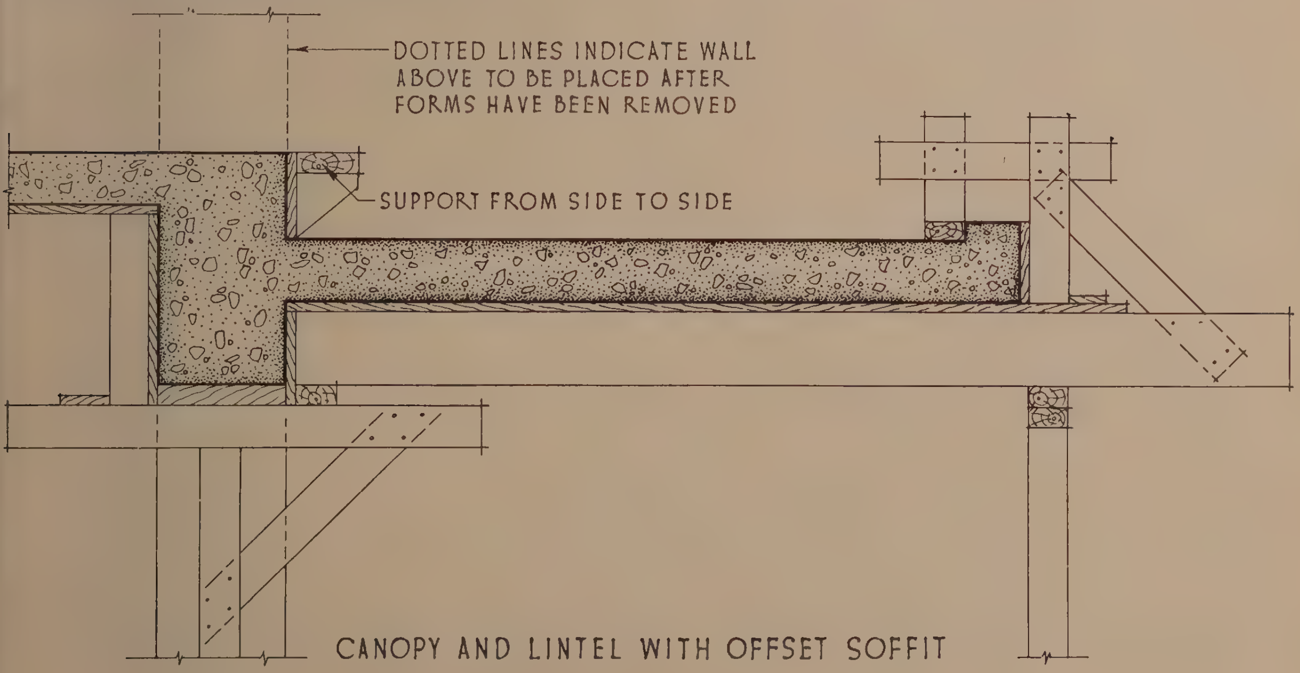
MANUAL ARTS HIGH SCHOOL, LOS ANGELES. PARKINSON AND PARKINSON, ARCHITECTS. LINDGREN AND SWINERTON, INC., CONTRACTOR.


DOTTED LINES INDICATE WALL ABOVE TO BE PLACED AFTER FORMS HAVE BEEN REMOVED
TEMPORARY BRACE TO BE REMOVED BEFORE FLOOR IS PLACED
WIRE TIE
PLYWOOD OR PRESDWOOD LINING
DOTTED LINES INDICATE FALSE BEAM OVER DOOR OPENING

CANOPY AND LINTEL WITH FLUSH SOFFIT

LAFAYETTE JUNIOR HIGH SCHOOL, LOS ANGELES. PARKINSON AND PARKINSON, ARCHITECTS. THEODORE A. BEYER CORP., CONTRACTOR.

beam soffit does not complicate the construction, as it is only neces-

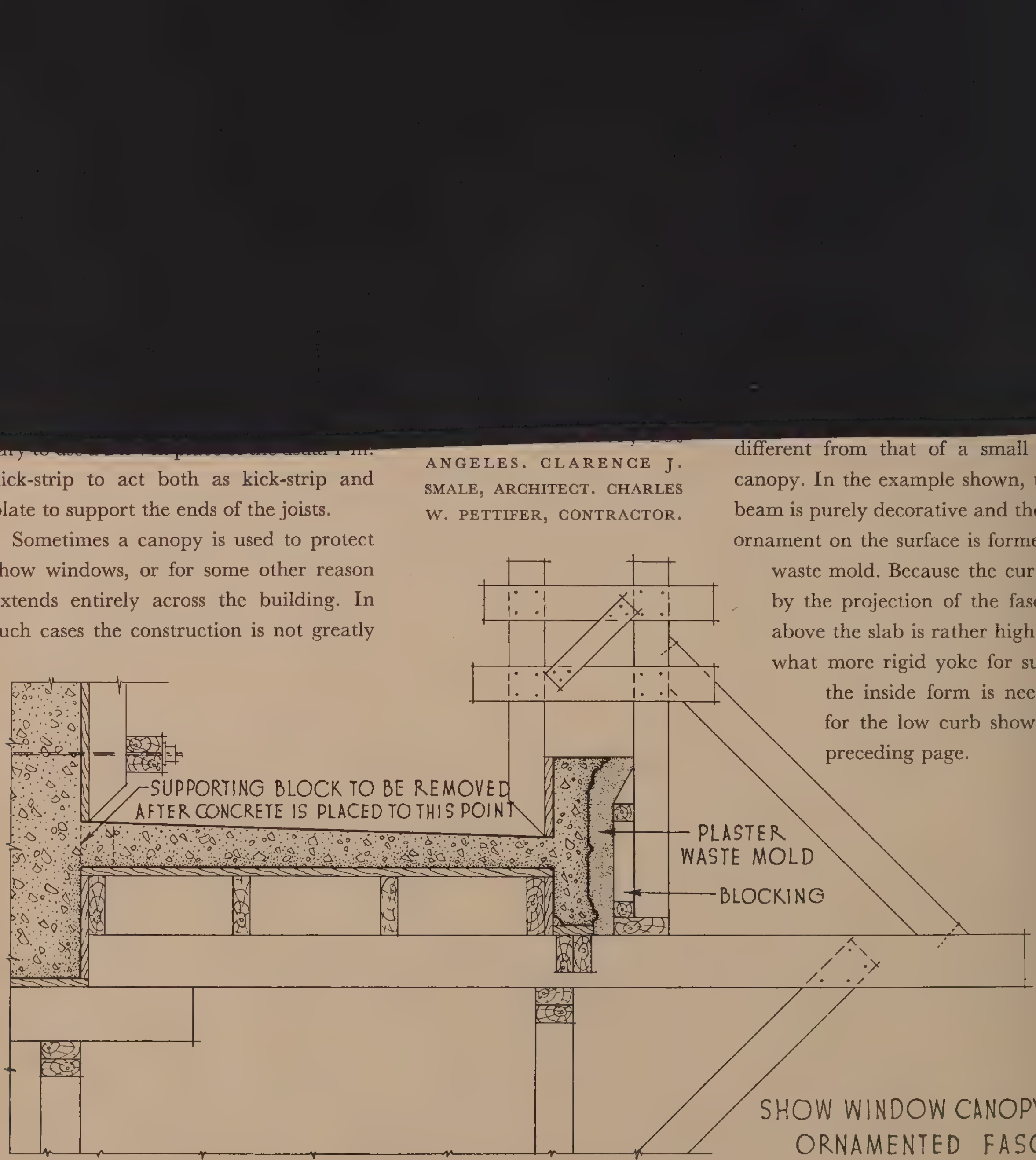

DOTTED LINES INDICATE WALL ABOVE TO BE PLACED AFTER FORMS HAVE BEEN REMOVED
SUPPORT FROM SIDE TO SIDE

CANOPY AND LINTEL WITH OFFSET SOFFIT

kick-strip to act both as kick-strip and plate to support the ends of the joists.

Sometimes a canopy is used to protect show windows, or for some other reason extends entirely across the building. In such cases the construction is not greatly different from that of a small entrance canopy. In the example shown, the fascia beam is purely decorative and the delicate ornament on the surface is formed with a waste mold. Because the curb formed by the projection of the fascia beam above the slab is rather high, a somewhat more rigid yoke for supporting the inside form is needed than for the low curb shown on the preceding page.

ANGELES. CLARENCE J. SMALE, ARCHITECT. CHARLES W. PETTIFER, CONTRACTOR.


SUPPORTING BLOCK TO BE REMOVED AFTER CONCRETE IS PLACED TO THIS POINT
PLASTER WASTE MOLD
BLOCKING

SHOW WINDOW CANOPY WITH ORNAMENTED FASCIA

Published by Portland Cement Association • 33 West Grand Avenue • Chicago

Spreading its delivery service rapidly throughout the west coast, United Parcel Service has built a new concrete package station at Los Angeles. A rigid structure for hard, continuous use, it was designed by Abbott, Merkt & Company, engineers and architects of New York. P. J. Walker Co., Los Angeles, was general contractor.

Package Station for United Parcel Service

By Hunley Abbott*

SOLE business of United Parcel Service, a distributing organization of national scope, is to deliver packages of merchandise for department stores and retail merchants to the homes of their customers. Formerly each store had its own delivery department; now, where United Parcel Service operates, all this delivery activity is consolidated into one organization serving a large group of stores. Where a dozen trucks used to make single deliveries in a block for a dozen different merchants, a U.P.S. truck now makes the deliveries for all of them. Elimination of duplicated effort, saving in time and equipment, has both lowered the cost of distribution and made possible more rapid delivery for United Parcel clients.

A maze of conveyor belts moves packages quickly and accurately throughout the building.

One of the first—if not the first—to organize such delivery service, United Parcel started in Seattle 25 years ago. Prospering from the first, it spread rapidly to practically all Pacific Coast cities. Coming east, an organization was set up at Cincinnati and New York city. Now over 300 stores are served in New York; in other words about 90 per cent of all department stores and retail merchants of men's and women's

---

*President, Abbott, Merkt & Company.

Wide concrete ramps give trucks ready access to loading stations on all floors of the new U.P.S. building.

apparel formerly operating individual delivery trucks in that huge metropolitan area now use United Parcel Service.

Trucks gather packages from each store and bring them to a U.P.S. central delivery station. Here they are sorted, first by general areas—north, east, south, west, suburbs, remote towns and villages. Packages for outlying areas are sent to "substations" where they are sorted again for routing direct to customers. These operations require a great amount of sorting and handling, most of which is accomplished by means of belt conveyors, slides and chutes.

For maximum efficiency, buildings housing these central delivery stations should be designed specifically for their purpose. To route thousands of packages from incoming trucks to hundreds of "destination" bins requires a layout permitting rapid, direct circulation to all parts of the building. It is also necessary to make loading platforms accessible to delivery trucks throughout the structure. Since the building contains, at all hours of the day and night, thousands of dollars worth of valuable merchandise that must be protected against loss, it should be a fireproof structure.

Push trucks move easily on smooth concrete floors.

While the city sleeps, United Parcel Service men and trucks rush to get out overnight deliveries.

The new United Parcel Service building at Los Angeles is one of many central delivery buildings operated by this organization. Serving Los Angeles and the surrounding community for 50 miles, it is located at 1140 S. Flower Street. Three stories in height, with a large penthouse, it has a frontage of 247 ft. and a depth of 150 ft.

In compliance with the need for a firesafe structure and one that could withstand day and night wear and tear of trucks and moving machinery, the building is as nearly 100 per cent concrete as our firm knows how to design. The foundations are concrete. The floors are flat slab reinforced concrete construction with concrete wearing surface, and the exterior walls are concrete.

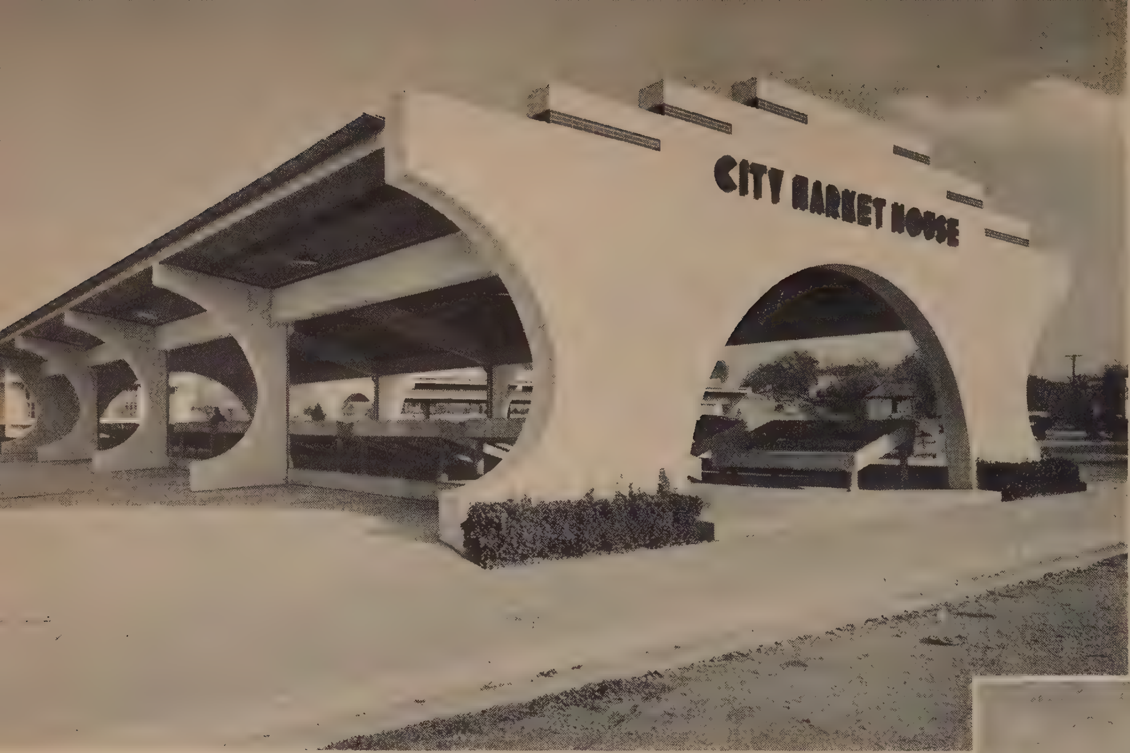
The architectural design was intentionally kept simple in keeping with the commercial, utilitarian character and purpose of the building, and also for economy in cost of construction. It is believed, however, that a pleasing, dignified appearance has been achieved by modest ornamentation cast monolithically with the structural wall. Emphasized by the brilliant sunshine which abounds in that area, these simple details produce their effects in highlights and dark shadows.

Heavy motor trucks drive into the building on all floors. They reach upper floors by means of a wide, two-way ramp with generous turning radii for easy passing on curves.

One feature of the building is that it was designed not only to provide for the dead and live loads in the building, but also to resist earthquake shocks requiring careful calculation of stresses due to horizontal load and special construction details.

The system of belt conveyors, slides and chutes, which may seem a hopeless maze of machinery to the uninitiated, is one of the most extensive, elaborate and complex installations ever designed for any building of similar purpose. It provides for rapid handling of an almost unlimited number of packages in continuous distribution.

Abbott, Merkt & Company, New York, engineers and architects, designed the building with Earl Heitschmidt, Los Angeles, as associate architect. P. J. Walker Co., of Los Angeles, was the general contractor.



Four of these reinforced concrete wings, radiating from a center office building, comprise the model Public Market at Austin, Texas. Simple in design, modern, clean and airy, it was designed by Charles H. Page, architect. W. J. Schwarzer was the contractor.

Austin Public Market

By Charles H. Page, A.I.A.

DEDICATION of the new public market house at Austin, Texas, was the culmination of a ten-year dream of making this city the produce-marketing center for the wide, fertile areas of central Texas. In 1928, after agitation for the project by producers and public alike had reached a high pitch of enthusiasm, $100,000 was added to a current bond issue program and promptly passed. Not until 1935, however, were any of those bonds issued. At that time, enough were sold to pay back a loan for the purchase of the land and to build the structure.

Concrete pavements and floors p within the limits of the ma

The market structure is unusual in plan. From the air it might suggest a cross or a four-spoked wheel. It comprises five units—an administration building at the hub of four wings, each a diagonal to the corner of the building lot. Such a plan, obviously, makes all store and exhibition space immediately accessible to the public. Each vendor has an equal chance to show his wares, and there are no "preferred" positions to arouse jealousy.

Under this plan there are further advantages. Customers are able to park very near the produce stalls, but within the property line of the market area. In this way the market does not intrude into adjacent streets to cause traffic congestion. There is also parking space for producers' trucks. The entire market activity is confined to the limits of one city block without interference in any way with the surrounding neighborhood. This has brought a great deal of good will to the market and has eliminated the cause for much of the criticism that is often directed to public markets.

Each of the four wings which contain the market stalls is 109 ft. long and 44 ft. wide. In three of the wings are 16 reinforced concrete bins arranged on two sides of a center aisle, for display of green vegetables. The other wing is largely devoted to comfort and washrooms, certified scales for weighing trucks and produce, and other market facilities. The concrete bins, sloping toward the center aisle for better display of goods, have a metal screen bottom to permit water and waste to drop through to drain troughs underneath.

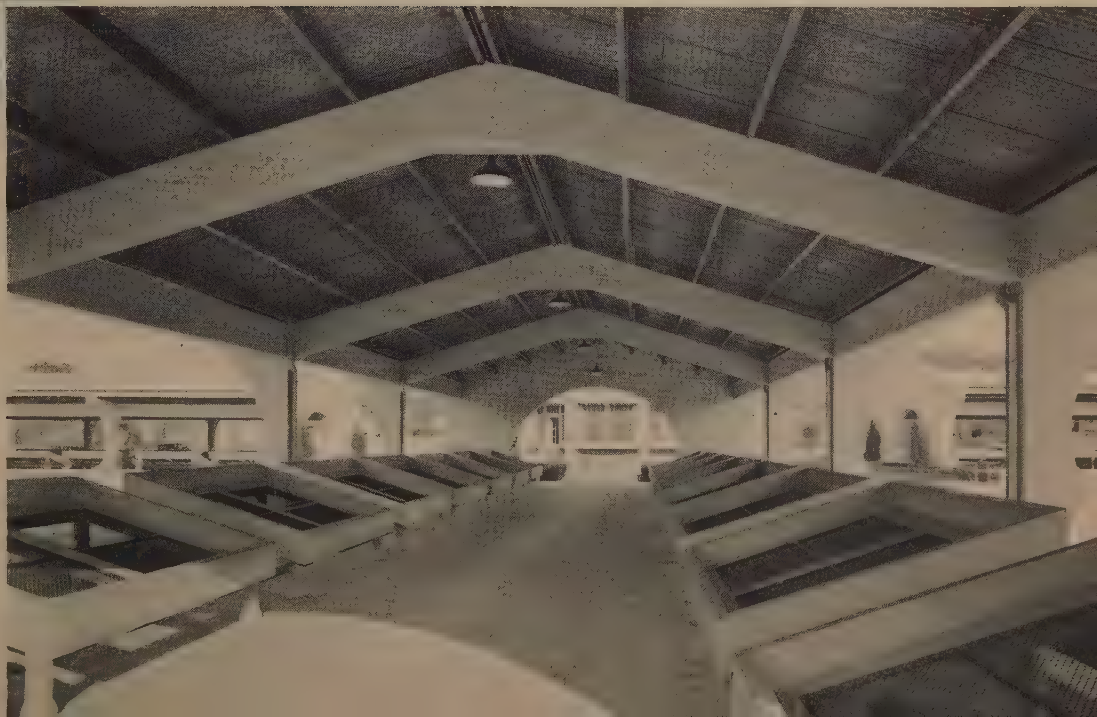
Except for light steel channels which support the corrugated cement-asbestos roof, the entire structure is reinforced concrete. Each wing is a concrete frame comprising 10 in. thick end walls, intermediate cross frames and longitudinal beams. The sides are not enclosed, thus making it an open air market, well sheltered from rain and sun by a wide roof.

The architectural design quite simply follows the function of the structure. The end walls take their shape from the pitch and the wide overhang of the roof. Except for narrow bands of colored tile inset in the concrete near the top of the end walls, and projected metal signs, no attempt was made to ornament the concrete. The marks of the form boards are quite apparent beneath the buff cement paint finish.

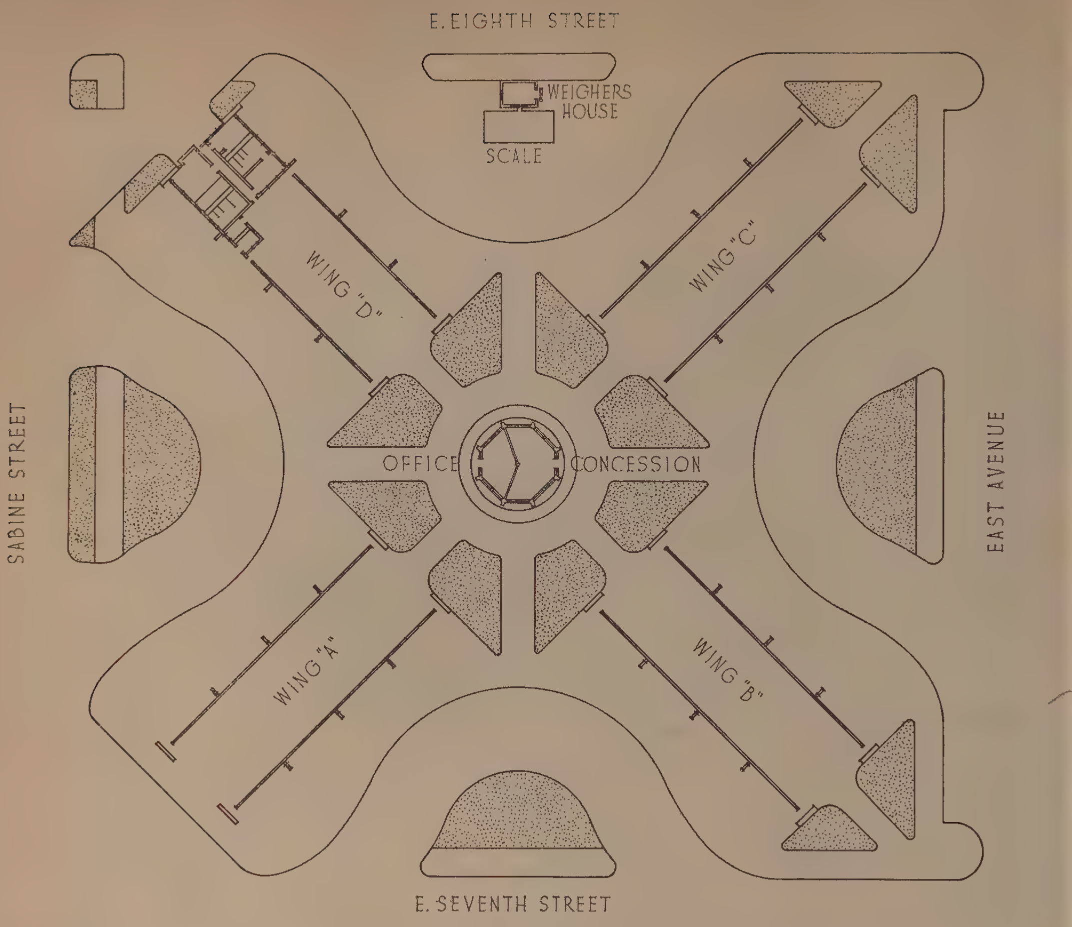
All floor areas under the market shed are concrete, raised about 6 in. above the paved parking areas which occupy the spaces between the wings. The floor is not only permanent, but is also one that can be easily kept clean. Every night, after the market has emptied, all the floors and bins are washed thoroughly with large hoses carrying water under heavy pressure. Each day is therefore started with spotlessly clean market facilities, free from odors.

The opening of the market was the occasion for city-wide rejoicing. To popularize the use of the structure by farmers and larger producers, no rent was charged for space during the first week. On opening day the Austin street car company allowed all passengers bound for the market to ride free. This merchandising program gave such impetus to the market as a going community enterprise that it has ever

ities for vendors and customers
out interrupting street traffic.



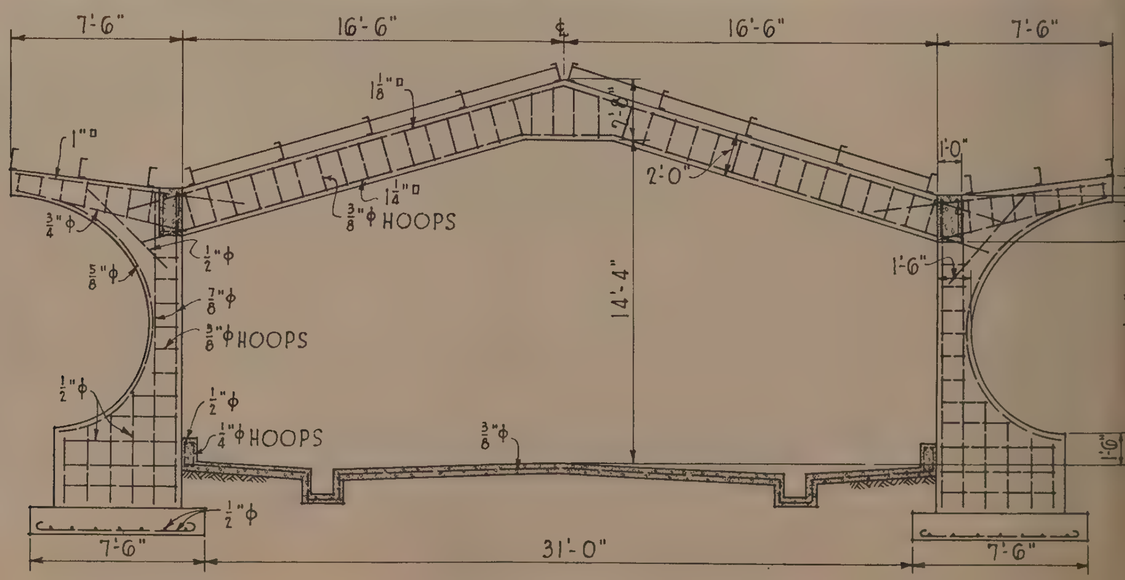
Easily cleaned concrete floors and produce bins are sheltered by a cement-asbestos roof supported on light metal channels and concrete frames.

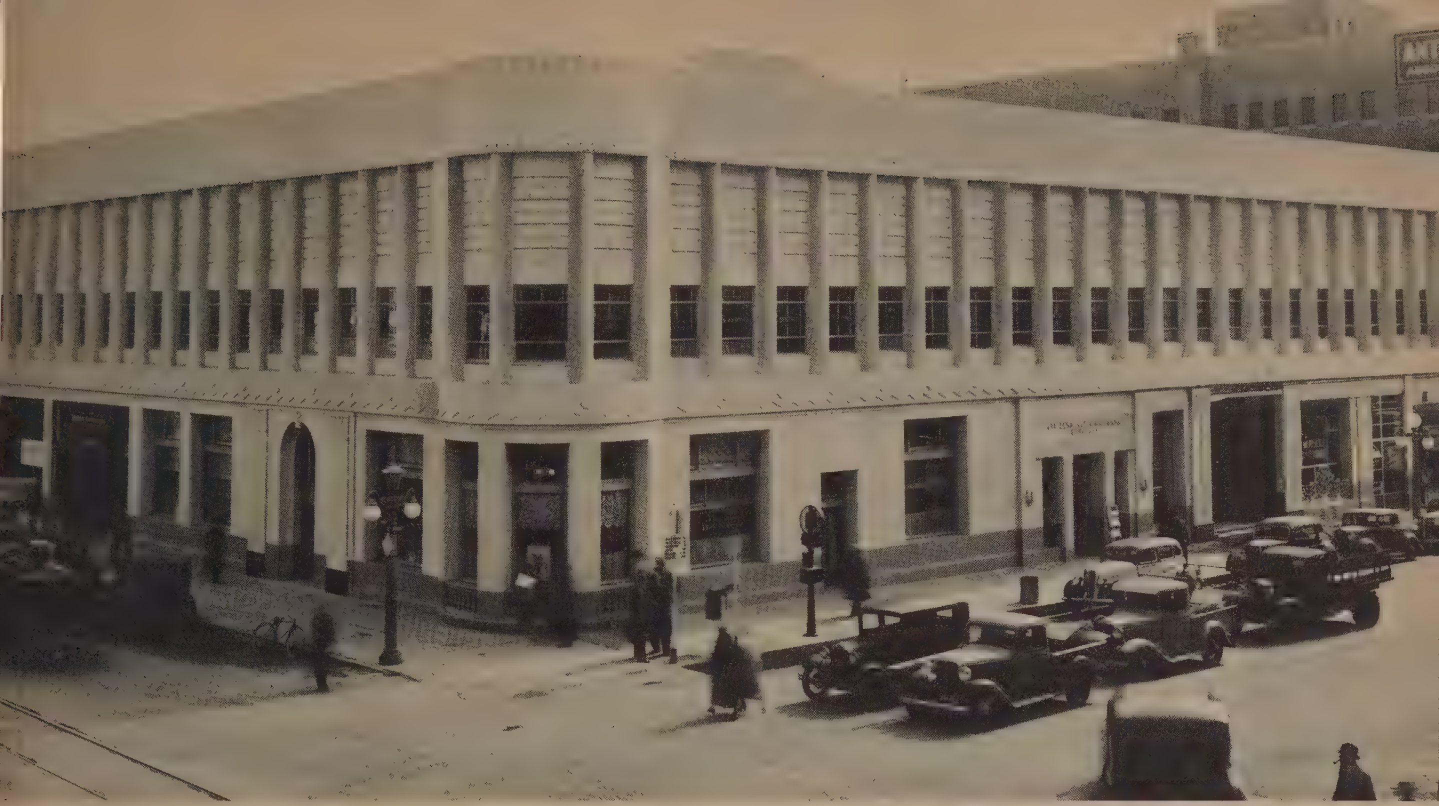


Plan of the layout reveals the novel but efficient manner in which Austin's Public Market may conduct business without interference with abutting street traffic. It is quite apparent that any position within the market structure is readily accessible to both automobile and pedestrian trade. Elimination of "preferred" positions makes conduct of the market an easy job.

since been well patronized by producers and public.

Well satisfied with their public market as a convenient place to shop for fresh vegetables, citizens of Austin are also well pleased at the economical cost at which the land and building were purchased. While $100,000 was considered a reasonable figure when it was first decided to build, the final cost was nowhere near that. The building cost was kept within $53,000. Design, landscaping and fixtures were $5,000 more. Land and costs incidental to floating the bond issue were about $23,000, making a total of $81,000. A PWA grant of approximately $12,000 plus a cash premium from bond sale of nearly $4,000 made the net cost of the market but $66,000 to Austin taxpayers. The market was built by W. J. Schwarzer, Austin contractor.



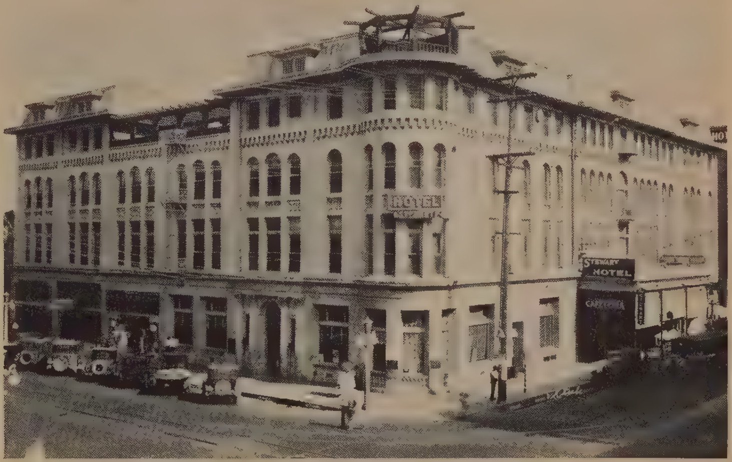


By razing the brick walls of old Stewart Hotel down to second-floor level and adding new architectural concrete second-story walls, Citizens National Bank has built a fine new office building in San Bernardino, Calif. Howard E. Jones was architect, and Bakker and Robinson were contractors for this eminently successful reconstruction job.

From Hotel to Bank Building

Reconstruction with Architectural Concrete

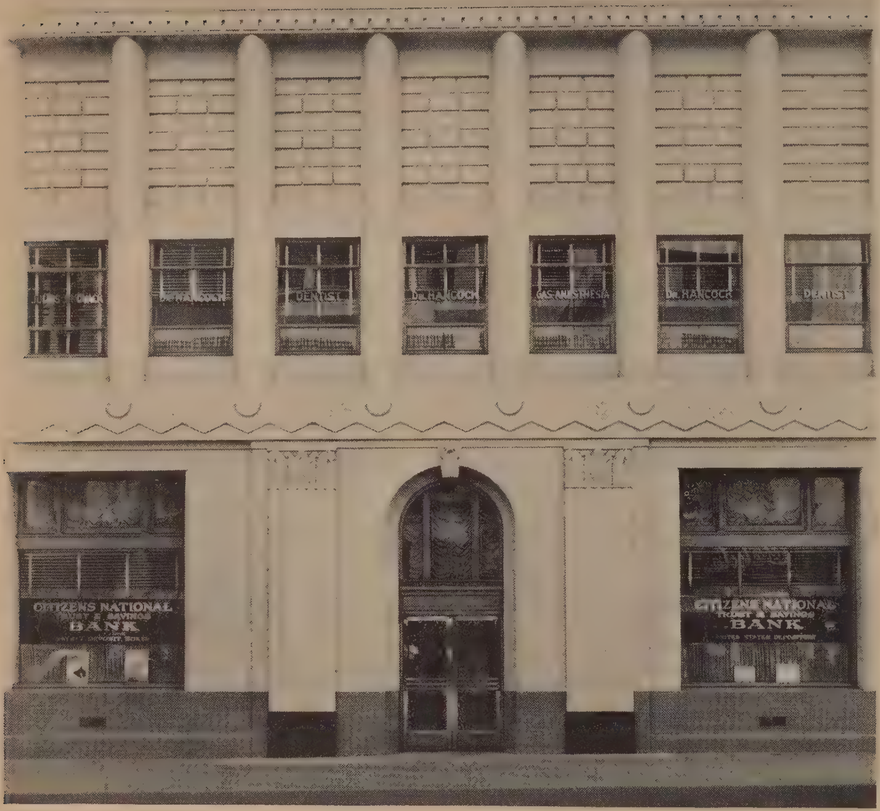
By Howard E. Jones, Architect



All that was saved of the old Stewart Hotel, partially destroyed by fire in 1935, was the cast stone veneered walls of the first story.

THE southeast corner of Third and E Streets in San Bernardino, Calif., site of the new Citizens National Bank Building, has passed through many stages of development since it became the dominant business block of the town. Thirty or forty years ago a hotel building on the spot burned to the ground. It was replaced shortly by the 4-story Stewart Hotel which was modernized in 1920 by bonding a 4-in. cast stone veneer to the brick walls of the first floor. At that time the ground level was made into banking quarters. In 1935, the Stewart Hotel was partially destroyed by fire; only the brick walls remained standing.

When the Citizens National Bank took over the property,



Modestly adorned belt courses and elliptical columns separated by deeply rusticated concrete spandrels comprise the architectural motifs of Citizens National Bank Building's new face. The old cast stone veneer was painted with portland cement paint to match the new reinforced concrete.

it was decided to reconstruct the building into a modern bank and office structure. Last February, after six months of work, the rebuilt structure was dedicated and launched on another phase of its career.

The major problem in developing a modern design was to keep the new details consistent with the old that were to be preserved. The fact that the cast stone of the first-story walls, which was salvaged in the reconstruction, was quite plain made this possible. The concrete bond beam at the second-floor level became a transitional motif with simple, slightly projected detail. Above this line the dominant note of the design was introduced in sharply contrasting horizontal and vertical details. The flat surface of the parapet wall, relieved by simple dentil bands top and bottom, reiterates the simplicity of the lower wall and ties the whole into an integrated design.

In preparing the old structure for its modern concrete facades, all brick walls and the former cast stone cornice were removed down to the bottom of the second-floor joists. The first-story walls were strengthened with reinforced concrete columns and structural steel columns in addition to the steel columns already in the wall.

A continuous reinforced concrete girder, 36x32 in., was then placed on the walls and columns of the first story, forming a continuous horizontal bond beam, the outer surface being exposed. Erected above this girder, and strongly anchored to it with eight $\frac{3}{4}$-in. round hooked dowels, were 39 half-elliptical reinforced concrete columns on $6\frac{1}{2}$-ft. centers. These columns, aside from their structural purpose, serve as the principal architectural motif of the second-story walls, separating the window openings and the rusticated spandrels.

The columns, which are 18 ft. high, were cast in waste molds in two lifts of 9 ft. each. The spandrel walls, 8 in. thick on street facades, were placed against $\frac{3}{16}$-in. Presdwood applied over a tight wood sheathing. Concrete for rear walls was placed in conventional wood forms.

On the street sides the parapet is decorated with an ornamental frieze and coping formed in plaster molds. The rustication in the spandrel panels above each window of the second story was formed by attaching beveled pine strips to the Presdwood form liner. Over the entrance, the name of the building is in relief in a five-section panel of cast stone.

An important problem in the reconstruction was to blend the older cast stone facing of the first floor with the new monolithic concrete of the second story. The smooth forming of the upper walls made the textures of the old and new portions practically identical. After two brush coats of beige-toned portland cement paint were applied to both, it was difficult to detect where the old wall stops and the new begins. From the street it has the appearance of an entirely new structure, which was the desire of the owner and the architect.

Two tie walls of reinforced concrete, extending from second-floor level to the roof, cross the building to provide necessary earthquake resistance. The remaining interior construction is wood frame with metal lath and plaster. Inside walls of the second floor are covered with canvas and all ceilings have acoustical plaster.

The Citizens National Trust and Savings Bank occupies the corner of the first floor, with other business firms using the remaining space. The banking rooms and the offices which occupy the entire second-floor area have all-season air conditioning. This obviously adds much to the desirability of the structure for office and commercial use. Further aiding the control of temperature within the building are the specially glazed plate glass windows of the west wall which reduce heat transmission about 30 per cent.

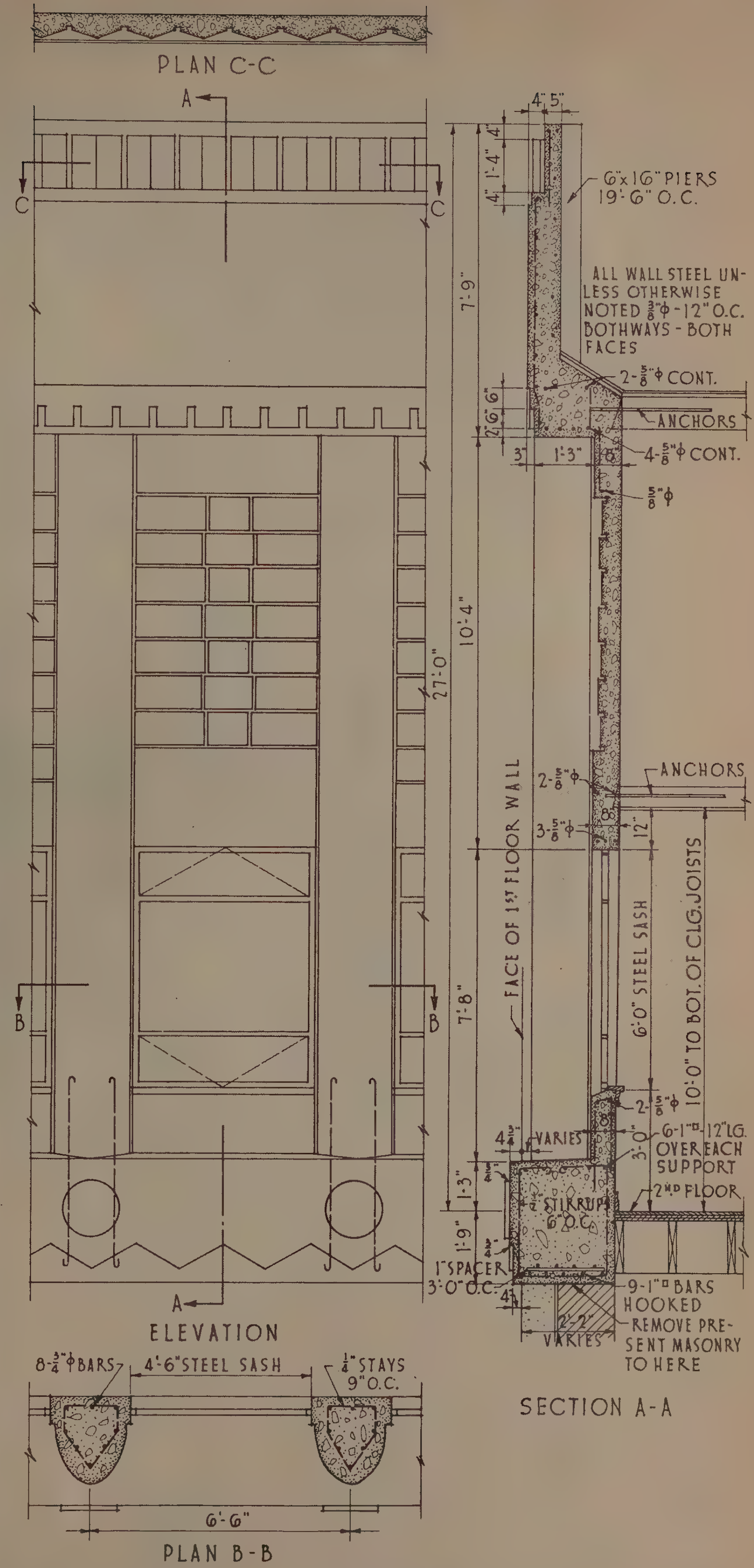
Illumination is provided by indirect lighting fixtures throughout the interior. The second floor, involving 18,000 sq. ft., is completely covered with rubber flooring.

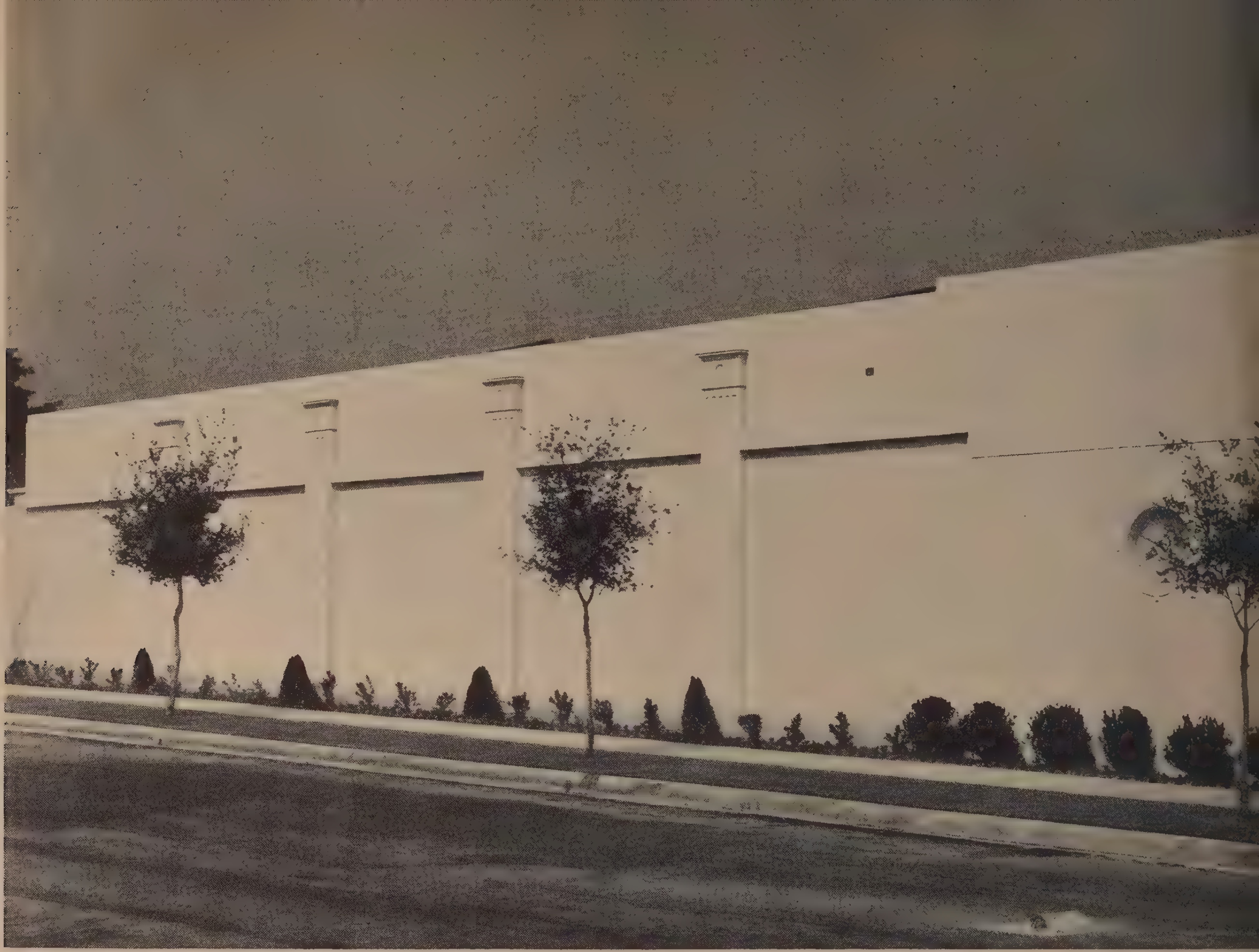
The structure, 142x162 ft. in plan, with the second floor designed with an interior court, was rebuilt at a cost of $150,000, including the installations mentioned.

Shortly following the opening of the building, John C. Ralphs, executive vice-president of the Citizens National Bank, made a statement which indicates that both the owner and the public are well pleased with the design and construction of the building.

"The modern style observed in the design of our new building," Mr. Ralphs said, "was adopted because of its pleasing simplicity and its keeping with current trends of architecture. An outstanding factor in the new appearance of the building, we believe, is the smooth, fine texture of both the old and new concrete surfaces of the walls. The splendid work done by the contractor in forming these smooth, modern walls is more than gratifying to us. We are probably more pleased, and naturally so, by the many compliments we have received, since the opening, on the appearance of the exterior and the comfort and convenience inside. Altogether, we are one hundred per cent satisfied with the entire job."

The reconstruction work was done by Bakker and Robinson, a well-known firm of San Bernardino contractors.





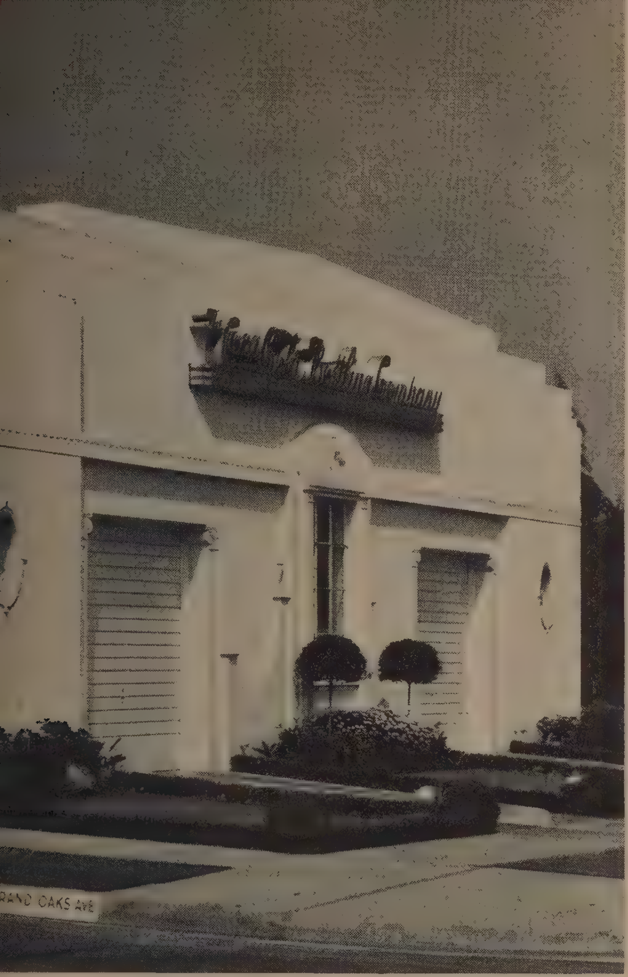
Pleasantly suggestive of the cool, sparkling drink it purveys, this new Coca Cola warehouse in Pasadena, Calif., has concrete walls finished in ice-green cement paint in which flecks of mica are embedded. Robert V. Derrah was the architect and Myers Bros., the contractors.

The Building with a Sparkle

"THE Pause that Refreshes" is a slogan that stops young and old and sets them to thinking of a long, cool, sparkling drink. Anywhere in America—in the streets under towering skyscrapers or on a lonely stretch of desert road—one has hardly to turn once around to see a Coca Cola sign beckoning. The success of Coca Cola, or a nation-wide business on a 5-cent drink, is a tribute to long, consistent and continuous advertising of a good product.

It is no wonder that, when the Coca Cola people decided to build a sub-warehouse on a principal highway in Pasadena, Calif., they wished to take advantage of their location and make the building another advertisement for their well-publicized product. Several methods might have suggested themselves, but the one selected was happily within the possibility of architectural design and particularly adaptable to the concrete walls with which the building is constructed. The idea was to bring the fabled "sparkle" of the drink to the building—to make the building sparkle. At the same time the structure was to have a substantial, dignified appearance and to be, withal, symbolic of the cleanliness with which the product is made, bottled and distributed.

In designing the structure this idea was kept in mind—to make it appear as light, airy, sparkling and cool as possible. This at once suggested a simple, straightforward design, avoiding cumbersome detail. The accepted design was modern, with a slight Georgian influence. The "sparkle"



was achieved by the manner in which the exterior walls were finished.

Plywood sheets, 2x8 ft., were used as form lining for the 8-in. concrete side and rear walls. The plywood was applied with level, unbroken horizontal joints, and with vertical joints broken in alternate courses. Joint lines were allowed to show, as also were air bubbles in the concrete surface, giving the building a texture which cast-in-place plastic concrete alone can produce.

In forming the front wall, waste molds were used for window heads and caps on jambs, also the belt course and pilaster caps. T & G boards with edges beveled gave the front wall and returns a ribbed texture that catches the sunlight. Vertical fluting in the pilasters, window and door jambs was produced with wood molds.

To put "sparkle" into the walls, two coats of ice-green cement paint were applied, followed by a mica spray. The paint was made with a white portland cement base to insure clear brilliance of the color, while the mica particles, reflecting the sun, give the structure the shimmering, moving sparkle that was desired. The ice-green color completes the effect of clean, cool walls.

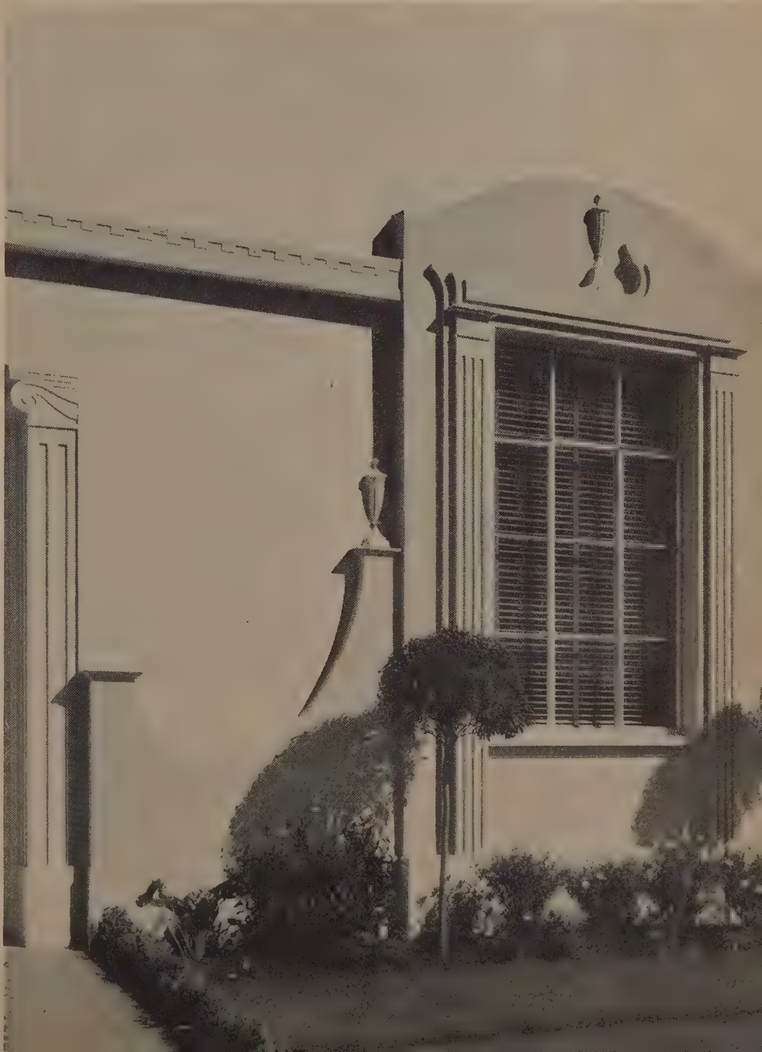
Inside the building, the floor is reinforced concrete with platforms located along each side and in the middle at truck level. For durability and safety, these platforms are built of concrete. At the front end of the structure, where the office, receiving room, checking room and locker spaces are located, are the only windows.

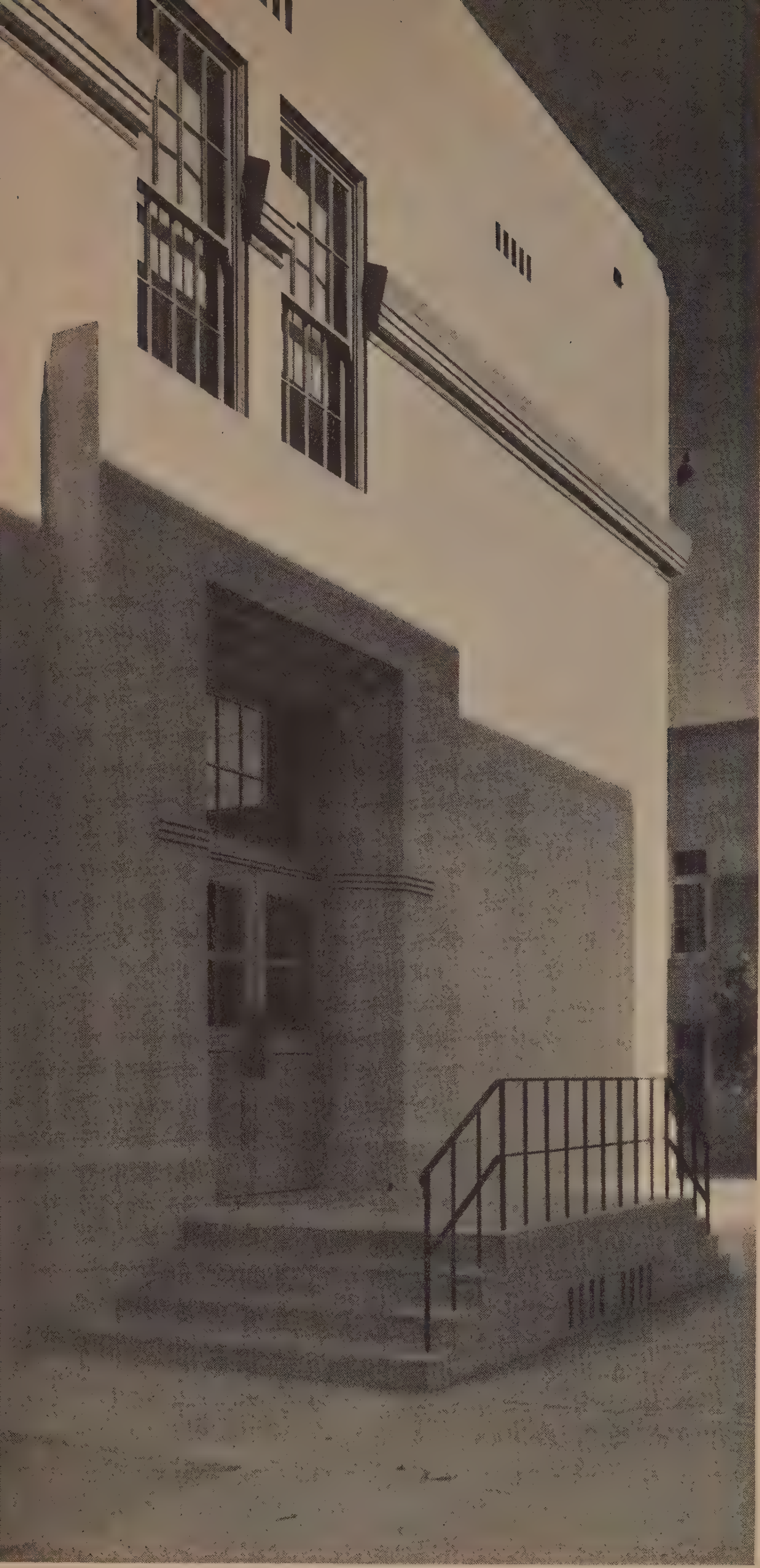
The steel truss roof is covered with a wood deck.

Used as a sub-warehouse and distributing station in connection with the large bottling plant at Los Angeles, this new Pasadena structure is designed for rapid movement of trucks, having two truck entrances front and back.

Erected in four months at a cost of 21 cents per cu. ft., it was designed by Robert V. Derrah, architect, of Beverly Hills, Calif., and built by Myers Bros., Los Angeles contractors.

The design is modern with a slight Georgian influence obtained with waste mold formed detail. The vertically-ribbed texture of certain parts of the wall was produced by means of narrow bevel-edged form boards.





To design a new concrete school unit in the midst of a group of older brick structures without too greatly disturbing the architectural unity of the group was the problem of Claude K. Smithley, architect for the project. Using a projecting belt course characteristic of the older buildings as the principal decorative feature of the new structure, a completely harmonious result was obtained. Bradley Construction Co. was the contractor.

Problem in Harmony

By Claude K. Smithley, Architect

HOW to harmonize a new, modern concrete structure with three older brick buildings was the problem presented in designing an addition to the Hammel Street School group in Los Angeles. The new structure, replacing a very old building, was to be placed on the central axis of the group. To have designed an entirely different type of structure, disregarding the form and principal decorative motifs of the old buildings, would have disrupted the architectural unity of the whole group. Knowledge that proposed modernization of the older structures could not be undertaken until some distant date influenced the decision for a new building in harmony with the old.

The existing structures have rather plain brick facades with a belt course about two feet below the heads of the second-story windows. Above this course the walls are stuccoed; below it the brick is exposed. The simplicity of the facades of the older structures made the problem of harmonizing the new design with the old relatively simple. The belt course motif was repeated as the principal decorative feature with main reliance for architectural interest placed upon balance of simple, well-proportioned masses.

While the new bows to the old for the sake of harmony, the new Hammel Street School addition is modern in every detail. A vertical emphasis is given to the large window areas by projecting the mullions where they extend through the spandrels from first to second floor. The remaining wall areas are unbroken except for horizontal form board marks, vertical reveals at the corners and small cast-in-place grilles. It is a firesafe structure with a concrete frame calculated to resist earthquake stresses.

Exterior wall textures were obtained by the use of square-edged surfaced O.P. boards, well oiled before concrete was placed. The splendid surface is due, we think, to careful use of an electric vibrator—for no other method was used to obtain the "soapy" smooth concrete face so popular in this area. Under the care of experienced workmen who know its limitations, vibration can be a dominant factor in the production of good concrete surfaces. Well braced and tightly drawn forms, of course, are necessary when vibration is used.

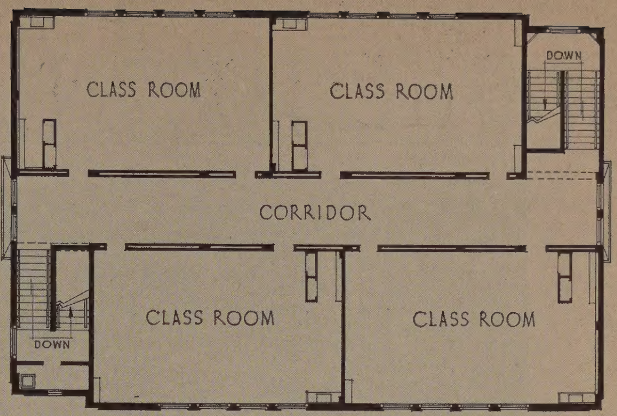
The building contains eight class rooms. Since it is occupied by primary grades, there are no separate wardrobe rooms. Space for this purpose is at the back of each room, separated from the recitation area by rows of bookcases. Except for a wash bowl in a corner of each room and a wash room for teachers, there is no other plumbing in the building. Ample toilet facilities for pupils are available in an adjacent building. Heating is by conduit from a central heating plant located at the rear of the new building.

By eliminating plumbing and heating installations, space available for class room use was naturally increased. Four class rooms are located on each floor with a corridor running the length of the building. Stairs at each end of the corridor permit rapid evacuation of the building through two side exits.

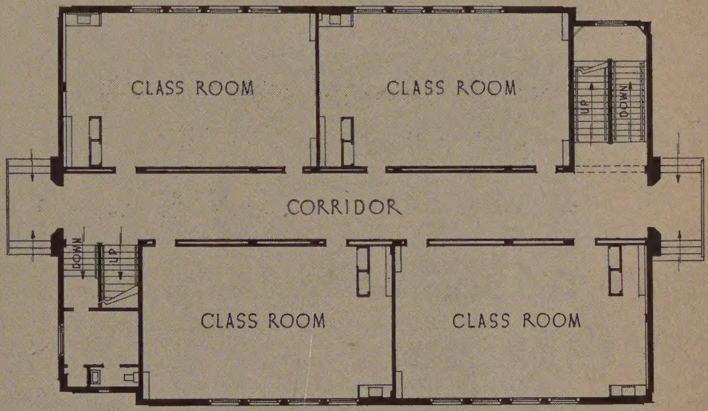
The concrete sub-floors in all rooms and corridors are finished with a good grade of linoleum. Plaster walls in the corridors are painted, but in the rooms are left in natural color. Ceilings throughout are finished with acoustic plaster.

Very satisfactory to the architect, and naturally to the board of education, was the low cost of the building, 20.3 cents per cu. ft. Part of that was due, obviously, to the comparatively few mechanical installations necessary, but the cost of the concrete construction was most economical.

While the building was being designed, and later when it was under construction, the architect enjoyed the cooperation and thorough understanding of A. S. Niebecker, architect for the Los Angeles board of education. He and his staff have been most helpful in all of the work undertaken in the city's wide school construction program. Appreciation is also due the Bradley Construction Co. for the splendid craftsmanship exercised in construction.

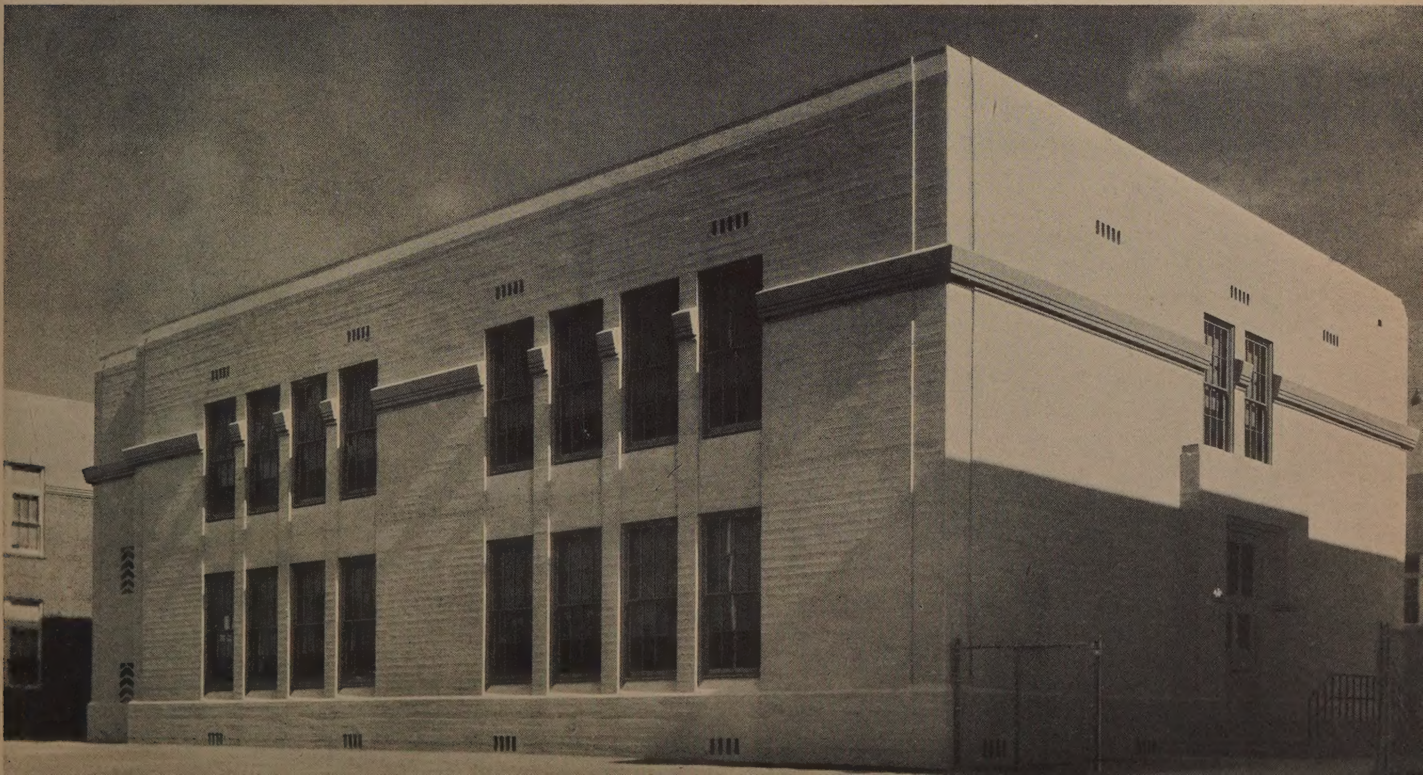


SECOND FLOOR PLAN

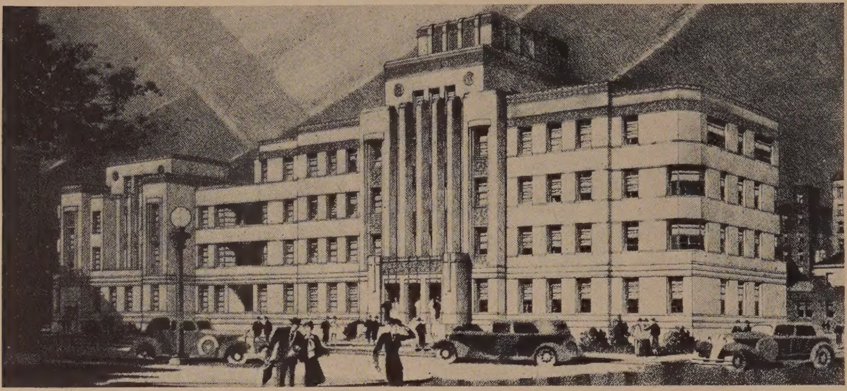


FIRST FLOOR PLAN

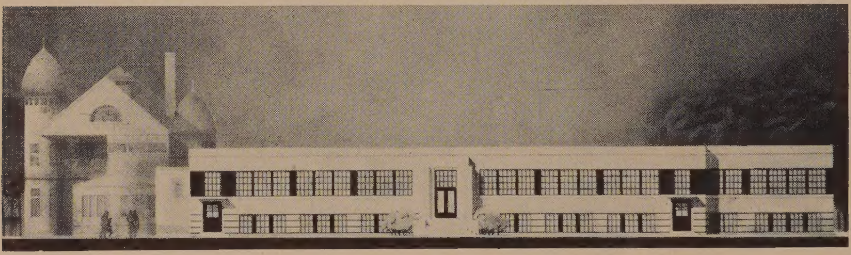
The new building has eight class rooms. Exterior concrete walls are plain, board-formed surfaces, the only detail being the belt course and a few cast-in-place grilles.



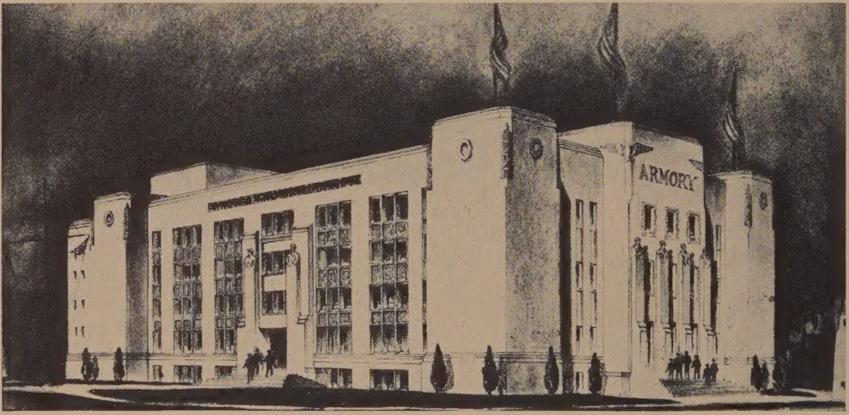
File 10-7-1 Being Letters, Notes and Advices About ARCHITECTURAL CONCRETE



I. E. Loveless' design for new maternity group at Houston, Texas, now under construction.



Project for Cleveland Association for Crippled and Disabled School and Shop Building, designed by Garfield, Harris, Robinson and Schafer.



Burlington, Iowa, Memorial Auditorium as envisaged by Robin B. Carswell, the architect.

BACK again for another look through File 10-7-1 to see what the architects did last winter and the contractors are doing this spring. By the end of summer there will be scores of new concrete buildings completed in every part of the country. They're a fine looking lot of structures, but we have space here for only seven.

• •

Quake-Proof in Houston

Probably the first "quake-proof" structures in Houston, Texas, are two hospitals now under construction for the Sisters of Charity of the Incarnate Word, operators of St. Joseph's Infirmary. Designed by I. E. Loveless of Beverly Hills, Calif., the group will comprise a 4-story children's hospital and a 5-story maternity building. The buildings are entirely concrete, designed to resist lateral forces of earthquake severity.

• •

Haddlock-Krill Co., Cleveland, Ohio, contractor, has started work on the $103,000 concrete School and Shops Building for the Association for the Crippled and Disabled. Two-inch Haydite concrete slabs will be used as furring. Garfield, Harris, Robinson and Schafer are the architects.

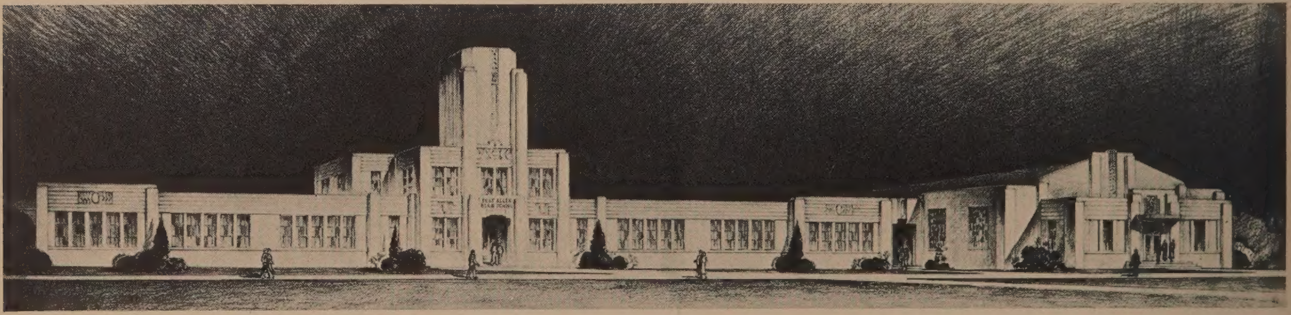
• •

Memorial Auditorium

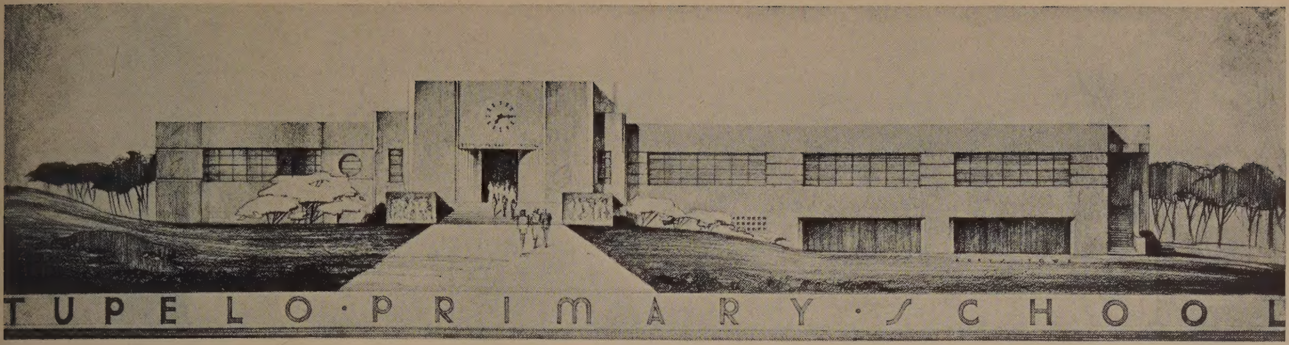
Out for bids at press time was Architect Robin B. Carswell's design for the new Burlington (Iowa) Memorial Auditorium and Armory. A $425,000 PWA appropriation project, it's a natural for architectural concrete. Mr. Carswell is a Burlington architect.

• •

One of several concrete school projects, designed by Bodman and Murrell, Baton Rouge, La., architects, is the Port Allen



New school and auditorium at Port Allen, La., a concrete job designed by Bodman and Murrell.



New Church Street Elementary School in concrete replaces an old structure demolished by a tornado last year. N. W. Overstreet and Town are the architects.

High School and Auditorium, Port Allen, La. Contract has been awarded to Caldwell Bros. and Hart and the building is now under construction at a cost of $143,182. Progress schedule calls for completion about October 1.

• •

Replacing an old masonry building demolished by a tornado in April, 1936, is the new Church Street Elementary School at Tupelo, Miss. To prevent recurrence of last year's damage, N. W. Overstreet and Town, architects, selected reinforced concrete. A WPA job costing $100,000, it will be ready by September 1.

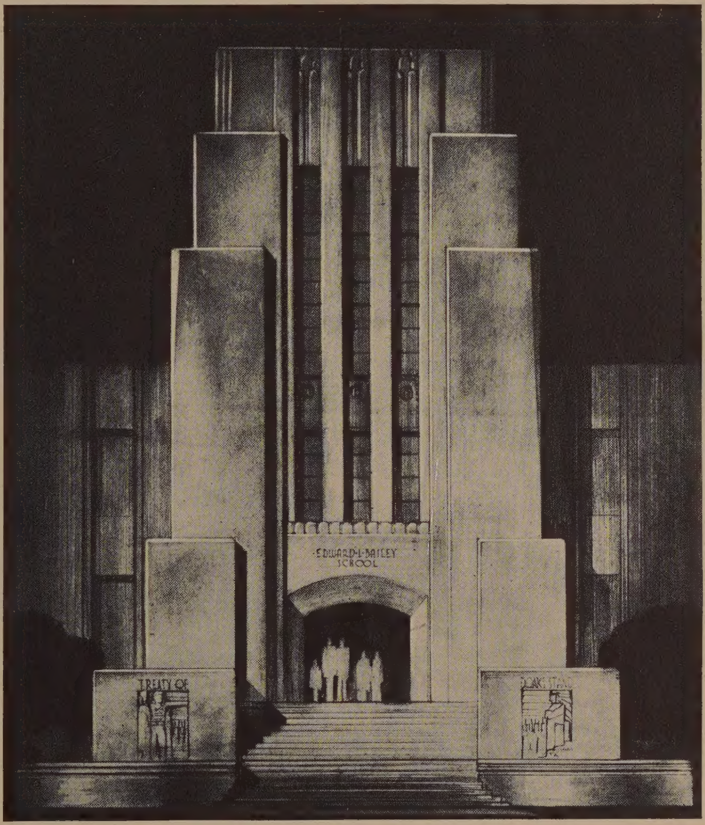
• •

Another Overstreet and Town project, a Junior High School, is nearing completion at Jackson, Miss. W. J. McGee and Son are contractors on this large architectural concrete project.

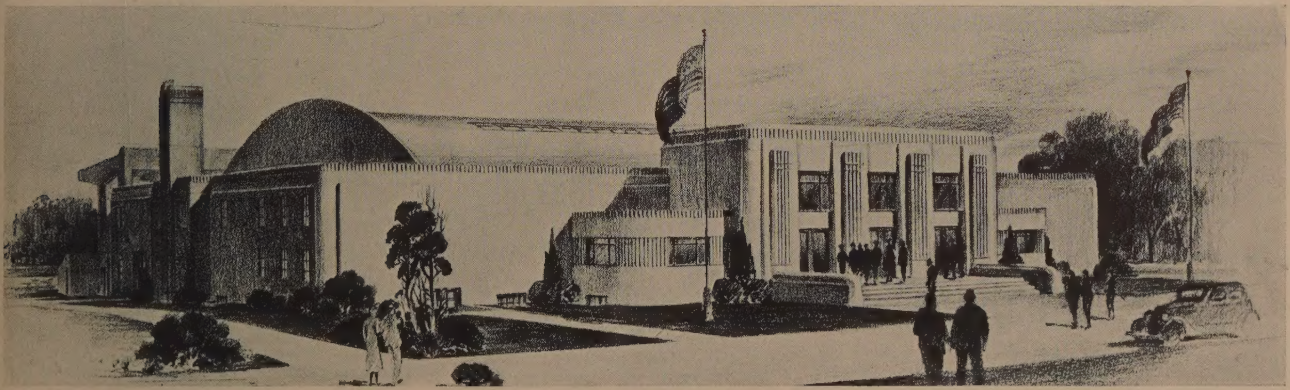
• •

Fairgrounds Project

Now under construction in Municipal Park and Fairgrounds, Cape Girardeau, Mo., is a large auditorium and recreational center designed for architectural concrete. A $56,000 bond issue supplements a WPA allotment of $164,000 for the purchase and development of the park property. The new concrete structure, designed by Hal Lynch and J. Carl Jourdan, associate architects, will cost about $150,000.



Nearing completion at Jackson, Miss., is a new Junior High School, a large structure with an impressive entrance. Overstreet and Town, architects; W. J. McGee and Son, contractors.

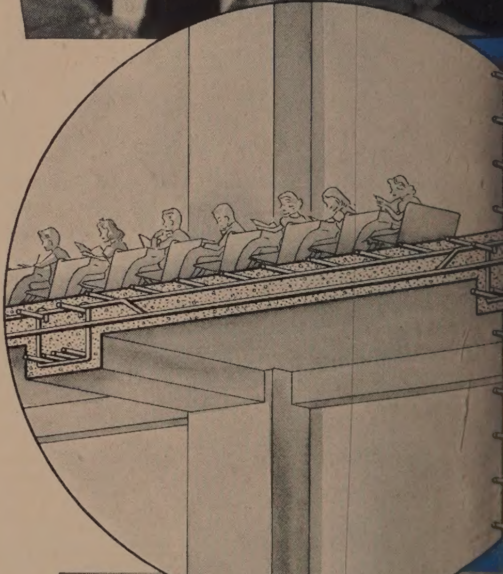


Showplace of Cape Girardeau, Mo., will be this large auditorium and recreation center, a monument in concrete by Hal Lynch and J. Carl Jourdan, associate architects.

Virginia children watching a school play. Courtesy Virginia State Chamber of Commerce.

PROTECT LIVES LIKE THESE....

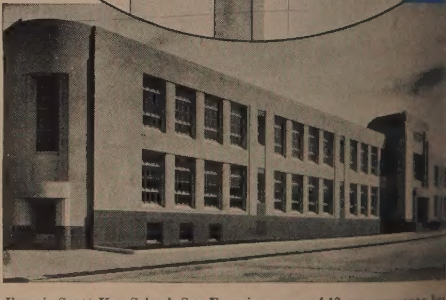
by building like this →



THE occupants of a reinforced concrete building are protected against fires, tornadoes, hurricanes, explosions and even earthquakes.

And no wonder! Walls, frame and floors are a monolith of concrete and embedded steel bars. Such a structure has the strength, rigidity and toughness to withstand terrific twisting, bursting and other forces that might spell disaster in a split second for less sturdy construction. It is the *safe* way to build.

Your community can enjoy this security if it can afford to build at all. Concrete's reasonable first cost and low maintenance will satisfy the thriftiest buyer. It is enduring, weather defying. And its beauty possibilities are unlimited. Ask your architect and engineer, or write us for complete facts about concrete for your new building. Send for your copy of "Concrete in Schools—Educational and Architectural Planning."



Francis Scott Key School, San Francisco—one of 12 new concrete bu ings recently completed under this city's $3,500,000 school building gram. William Mooser, Edward A. Eames and Dudley Dacre St architects; James M. Smith, structural engineer; Dinwiddie Construc Co., contractor—all of San Francisco.

PORTLAND CEMENT ASSOCIATION, Dept. A, 33 W. Grand Ave., Chicago, Ill.
A National Organization to Improve and Extend the Uses of Concrete

REINFORCED CONCRETE — *Safest way to build*